Grade 7

My Summer Learning Packet

BE A HERO
READ!

7th Grade Summer Learning Packet

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COMPTON UNIFIED SCHOOL DISTRICT

MESSAGE FOR PARENTS

Dear Parents and Guardians,

As summer break approaches, we would like to share with you some learning resources that we have available for our Compton USD students. From our Summer Learning Packets to our online programs, CUSD students have multiple opportunities to reinforce learning. We want our scholars to continue learning during vacation time!

Educational research consistently shows that summer learning programs help students better retain the information learned during the previous year and better prepares students for the upcoming grade level. We also know that when kids read over the summer, they are more likely to leap ahead when they return to school. This is often called the "summer leap."

Please visit our Distance Learning Platform (Parent Resources) in the Compton Unified School District website to access some of the resources that we have available for our students!

We hope that you have a restful and healthy summer break and we look forward to seeing everyone in August.

EDUCATIONAL SERVICES

PHONE:
(310) 639-3165

WEBSITE:
www.compton.k12.ca.us

SUMMER LEARNING PACKETS

Our Common-Core aligned ***Summer Learning Packets*** offer our students the opportunity to review some of the most important concepts learned throughout this academic year. These activities mainly cover the areas of literacy and mathematics. Each packet contains student work that students can complete during the summer break.

In addition, we recommend that students engage in leisure reading for a minimum of 30 minutes daily! Encourage them to take home reading books from their classroom/school library!

Please know that these instructional activities and ideas are suggested and not required. Some children may need a combination of reading independently and having someone read to them. Some children prefer reading on the iPad or computer. If your child is struggling with a math page, please let your child's next year teacher know what concepts were difficult. If your child needs to skip problems, that is fine!

Our intention is to provide academic activities for children who would like to complete them, as well as for parents that find the review beneficial for their child. We hope each child finds the activities engaging.

Other academic summer activities could include journal writing, composing emails to family and friends, writing post cards while on a trip, sending thank-you notes, card games, Sudoku, word searches, crossword puzzles, arts and crafts, gardening, putting on plays/musicals, organizing a child-friendly garage sale, cooking, having a family game/puzzle night, etc.

HAVE A WONDERFUL SUMMER!!!

SUMMER ENRICHMENT

DISTRITO ESCOLAR UNIFICADO DE COMPTON

MENSAJE PARA LOS PADRES

Queridos padres y tutores,

A medida que se acerca el descanso de verano, nos gustaría compartir con ustedes algunos recursos de aprendizaje que tenemos disponibles para nuestros estudiantes. De nuestros *Paquetes de Aprendizaje de Verano* a algunos de nuestros programas en línea, los estudiantes de CUSD tienen múltiples oportunidades para reforzar el aprendizaje. Queremos que nuestros estudiantes continúen aprendiendo durante las vacaciones

La investigación educativa muestra consistentemente que los programas de aprendizaje de verano ayudan a los estudiantes a conservar mejor la información aprendida durante el año escolar anterior y prepara mejor a los estudiantes para el próximo nivel de grado. También sabemos que cuando los niños leen mucho durante el verano, con mayor probabilidad irán por delante cuando vuelvan a la escuela. Esto a menudo se llama el "salto de verano".
Visite nuestra Plataforma de Aprendizaje a distancia (Recursos para padres) en el sitio web del Distrito Escolar Unificado de Compton para tener acceso a algunos de los recursos que tenemos disponibles para nuestros estudiantes

Esperamos que tenga un descanso de verano relajante y saludable y esperamos ver a todos en agosto.

SERVICIOS EDUCATIVOS

TELEFONO:
(310) 639-3165

SITIO WEB:
www.compton.k12.ca.us

PAQUETES DE APRENDIZAJE DE VERANO

Nuestros paquetes de aprendizaje de verano ofrecen a nuestros estudiantes la oportunidad de revisar algunos de los conceptos más importantes aprendidos a lo largo de este año académico. Estas actividades abarcan principalmente las áreas de alfabetización y matemáticas. Cada paquete contiene el trabajo que los estudiantes pueden completar durante las vacaciones de verano.

Además, recomendamos que los estudiantes participen en lectura libre por un mínimo de 30 minutos diarios ¡Anímeles a llevar libros de lectura a casa de la biblioteca de su salón de clases/ biblioteca de la escuela!

Por favor, sepa que estas actividades e ideas son sugeridas y no requeridas. Algunos niños pueden necesitar una combinación de lectura independiente y también que alguien les lea. Algunos niños prefieren leer en el iPad o en la computadora. Si su hijo/a tiene problemas con una página de matemáticas, por favor informe a la maestra del próximo año escolar sobre qué conceptos eran difíciles para su hijo/a. Si su hijo/a necesita saltarse los problemas, no pasa nada.

Nuestra intención es proporcionar actividades académicas para los estudiantes que deseen completarlas, así como para los padres que encuentren este repaso beneficioso para su hijo/a. Esperamos que cada niño/a encuentre actividades que en las que se puedan involucrar.

Otras actividades académicas de verano podrían incluir la redacción o escritura libre, escribir correos electrónicos a familiares y amigos, la redacción de tarjetas postales durante un viaje, enviar notas de agradecimiento, juegos de cartas, Sudoku, búsquedas de palabras, crucigramas, artes y artesanías, jardinería, poner juegos/música, organizar una venta de garaje para niños, cocinar, tener una noche de juegos/rompecabezas familiar, etc. ¡Disfrute con sus hijos/as las muchas oportunidades que ofrece el verano!

¡TENGAN UN AGRADABLE VERANO!

SUMMER ENRICHMENT

Summer Reading Log

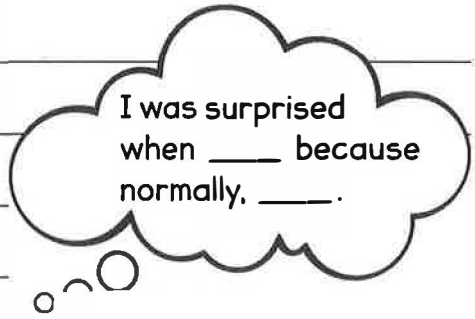
NUMBER	TITLE	RATING

Grade 7

ELA

Journal Entry 1

What is something you have experienced recently that was surprising or unusual? Describe the experience or event and explain what made it interesting or out of the ordinary.



Phrases and Clauses

Introduction **Phrases** and **clauses** are groups of words that give specific information in a sentence.

- A **phrase** may contain the subject or the predicate of a sentence but never both—and sometimes neither. For this reason, a phrase cannot stand alone.

Sentence: The great American artist Romare Bearden was born on September 2, 1911.

Phrase 1: The great American artist Romare Bearden *(contains subject)*

Phrase 2: was born *(contains predicate)*

Phrase 3: on September 2, 1911 *(contains neither)*

- A **clause** contains both a subject and a predicate. An **independent clause** can stand alone. A **dependent (subordinate) clause** depends on another clause and cannot stand alone.

Sentence: Although Bearden was born in North Carolina, his family eventually moved to New York.

Clause 1: **subject** **predicate**
Although Bearden was born in North Carolina *(dependent)*

Clause 2: **subject** **predicate**
his family eventually moved to New York *(independent)*

Guided Practice **Circle *P* for *phrase* or *C* for *clause* to identify the underlined group of words in each sentence. Then write *D* above any dependent clauses.**

Hint

A dependent clause often begins with *before*, *after*, or *until*. Phrases can also begin with these words, but phrases cannot have both a subject and a predicate.

1 Before he began his career as an artist, Bearden received a degree in education. P C

2 After college, he worked as a social worker in New York City. P C

3 He studied the works of many European artists, including Picasso and Matisse. P C

4 Bearden also studied African art and Chinese landscape paintings. P C

Independent Practice

For numbers 1–4, select the group of words that answers each question.

Answer Form

1 Ⓐ Ⓑ Ⓒ Ⓓ
2 Ⓐ Ⓑ Ⓒ Ⓓ
3 Ⓐ Ⓑ Ⓒ Ⓓ
4 Ⓐ Ⓑ Ⓒ Ⓓ

Number Correct ___/4

1 Which group of words in this sentence is a clause?

When World War II broke out, Bearden served in the U.S. Army.

A broke out

B in the U.S. Army

C served in the U.S. Army

D When World War II broke out

2 Which group of words in this sentence is a dependent clause?

After that, Bearden spent time in Paris, where he studied art.

A where he studied art

B spent time in Paris

C After that

D Bearden spent time

3 Which group of words in this sentence is an independent clause?

Back in New York once more, Bearden briefly became a songwriter before pursuing art again.

A Bearden briefly became a songwriter

B became a songwriter before pursuing art again

C Back in New York once more

D before pursuing art again

4 Which group of words in this sentence is a phrase?

In the 1960s, while Bearden focused on creating collages that depicted African-American life, he also became active in civil rights.

A he also became active in civil rights

B In the 1960s, while Bearden focused on creating collages

C In the 1960s

D while Bearden focused

▶ **Try It** Read what you wrote in Part 1. See if you can find two phrases and two clauses in your own writing. Underline the phrases you find. Put two lines under the clauses.

Using a Dictionary or Glossary

Introduction Many words have more than one definition. Some words also function as more than one part of speech. A dictionary can tell you a word's definition and part of speech.

- A **dictionary** lists words in alphabetical order. Each entry gives the word's pronunciation, the part of speech it can function as, and the word's meaning or meanings.

Attempt has more than one meaning, so each definition is numbered.

(ə'tem[p]t) *n.* 1 an act of trying to achieve something 2 an effort to surpass a record *v.* 3 to make an effort to achieve or complete 4 to try to climb to the top: *The group decided to attempt Mount Mitchell.*

This sample sentence clarifies one of the meanings of *attempt*.

Pronunciations are in parentheses. A stress mark (') shows which syllable to stress. Pronunciations often depend on the part of speech.

(fĭg'yər) *n.* 1 a symbol, such as a number 2 a famous person 3 the shape or form of someone or something *v.* 4 to calculate, do math 5 to believe or conclude: *I never figured it would rain.*

Abbreviations show the part of speech: *n.* stands for *noun* and *v.* stands for *verb*.

- A **glossary** is an alphabetical list of terms used in a book. Each entry explains the meaning of a word as it is used in that book.

Guided Practice **Use the entries above and your own dictionary to answer the questions about the underlined words in the passage.**

Hint

When looking up a word with multiple definitions, be sure to read them all. Don't just stop with the first or second definition.

Warning: The Asian longhorned beetle has invaded the United States! A wood-boring beetle, it could decimate our forests. This super-pest is indigenous to China and other Asian countries. Since the beetle's detection in the United States, government agencies have attempted to eradicate it. Who could have figured that a small bug could make so much trouble?

1 Which definition helps you understand the meaning of *attempt*?

_____

2 What part of speech is the word *attempt* as used in the passage?

_____

3 Which definition helps you understand the meaning of *figured*?

_____

4 Use your dictionary to find the meanings and parts of speech of *decimate*, *indigenous*, and *eradicate* as they are used in the passage. Write your answers on a separate piece of paper.

Independent Practice

Use the dictionary entries to answer numbers 1–3.

Answer Form

1 Ⓐ Ⓑ Ⓒ Ⓓ
2 Ⓐ Ⓑ Ⓒ Ⓓ
3 Ⓐ Ⓑ Ⓒ Ⓓ

Number Correct ___/3

introduce (ĭn'trə do͞os', (ĭn'trə dyo͞os') *v.* **1.** to present one person to another: Let me introduce you to Larry. **2.** to cause someone to experience something for the first time: *Ingrid introduced me to Dutch food.* **3.** to bring something to a place for the first time **4.** to preface: *Phil introduced the film with a brief talk.*

1 Which definition matches how introduced is used in this sentence?

The Asian longhorned beetle was likely introduced to the United States as a stowaway in wood packing materials from Asia.

A Definition 1
B Definition 2
C Definition 3
D Definition 4

depression (dĭ prĕsh'ən) *n.* **1.** a pit or a hollow **2.** great sadness **3.** a reduction in activity **4.** a period in which an economy declines

2 Which definition matches how depression is used in this sentence?

A female beetle chews depressions in the bark of a hardwood tree and lays her eggs in them.

A Definition 1
B Definition 2
C Definition 3
D Definition 4

conduct (kən dŭkt') *v.* **1.** to manage or direct **2.** to lead or guide someone: *Stefan will conduct you to your rooms.* **3.** to behave **conduct** (kŏn' dŭkt') *n.* **4.** the way a person behaves **5.** the management of something

3 Choose the correct pronunciation of conduct as it is used in this sentence.

The government has enlisted help, and volunteers now conduct searches for Asian longhorned beetles.

A kŭn' dŭkt'
B kən dŭkt'
C kŭn' dŭkt'
D kŏn' dŭkt

▶ **Try It** Revisit what you wrote in Part 1. Underline words that are characteristics of a hero. Using a print or online dictionary, look up each word. If the word you used could have a meaning other than the one you meant, put a star above the word. If it could be used as a different part of speech, circle it.

Read the biography about a famous dancer. Then answer the questions that follow.

Martha Graham: Modern Dance Innovator

by Eva Milner

1 In the world of dance, Martha Graham is a giant. A true innovator, it was she who led the way into the brave new world of modern dance, leaving behind the constraints of classical ballet. Through her work as a dancer, choreographer, and teacher, Martha has inspired both audiences and generations of dance students. Her institute, the Martha Graham Dance Company, has produced some of the finest dancers in the world today.

2 Martha Graham was born in 1894 in a small town near Pittsburgh, Pennsylvania. Her father was a doctor who specialized in nervous disorders. He was interested in how illnesses and disorders could be revealed through the way a patient's body moved. Martha also believed in the body's ability to express what is inside. She would channel this belief through dance, not medicine, however.

3 Martha was an athletic child, but it wasn't until after seeing the ballet dancer Ruth St. Denis in her teens that she became interested in dance. Martha was so inspired by the performance that she enrolled at an arts college where she studied theater and dance. After graduating in 1916, she joined the Denishawn School, a dance company founded by Ruth St. Denis and Ted Shawn to teach both American dance and world dance.

4 Though Martha began her eight years at Denishawn as a student, it wasn't long before she became a teacher and one of the school's best-known performers. It was during this time that Martha costarred with Ted Shawn in "Xochital," a duet that Ted created specifically for Martha. In this ballet, Martha played the role of an Aztec maiden attacked by an Aztec emperor. Her wildly emotional performance brought her critical acclaim.

5 By 1923, however, Martha felt ready to try new things. She took a job dancing in a vaudeville show in New York City. Here Martha had the opportunity to create her own dances. While there was some room for creativity, she still had to please the audience. Soon she longed for someplace she could take her experimental dance techniques even further. Her search led her to a job teaching at the Eastman School of Music, where she had complete control over her classes and the dance program. This was her chance to truly experiment.

6 Martha felt that classical ballet focused too much on fluidity and grace and ignored deeper, darker emotions and themes. At Eastman, Martha began to use jerky, trembling movements and falls to express ideas and feelings. She developed a fresh, new method of muscle control she called "contraction and release." Through this method, a dancer creates movement by first contracting a muscle and then allowing the movement to flow as the muscle relaxes. This method of muscle control gives the dancer's motions a hard, angular look. This was a big change from the dance style found in classical ballet.

7 Audiences did not always appreciate Martha's style. They were used to the more graceful, flowing motions of ballet dancers, and Martha's choppy, angular style was shocking to them. Many reviewers criticized her for dancing in an "ugly" way. During her first performance in Paris, she and her dancers were booed by the audience.

8 In 1926, Martha formed her own dance company, the now-famous Martha Graham School for Contemporary Dance. She brought in several of her students from the Eastman school and also began

working with Louis Horst, the musical director from her days at Denishawn. Under Horst's influence, Martha began to use music by modern composers, rather than music from the eighteenth and nineteenth centuries. This was yet another way in which Martha's work departed from classical ballet.

9 Many of Martha's dances explored emotional and psychological themes. One example is her solo piece "Lamentation." In this dance, a grieving figure sits alone on a bench and moves to a mournful piano score. The dancer wears a tube of stretchy, purple fabric. Only the dancer's head, hands, and feet show. The movements of the dancer's body within the fabric create a sort of moving sculpture. The dancer represents the raw emotions of grief.

10 Martha was also interested in exploring social issues and political themes. Her dance "Deep Song" was a statement about the Civil War in Spain, and "Chronicle" looked at the menace of fascism and war in Europe. This second dance was created the same year Martha had turned down an invitation to the 1936 Olympic Games being held in Germany. Both the dance itself and her refusal to attend the games expressed Martha's integrity and desire to highlight important political issues.

11 Martha Graham's career spanned her entire life. Health issues forced her to quit dancing at the age of 76, but she continued teaching and creating works until her death in 1991. In her lifetime, she created 181 masterpieces of dance, which continue to inspire dancers and audiences alike.

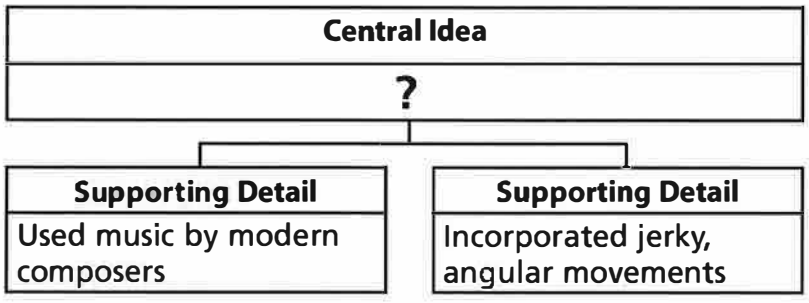
Answer the questions. Mark your answers to questions 1–3 on the Answer Form to the right.

Answer Form

1 Ⓐ Ⓑ Ⓒ Ⓓ
2 Ⓐ Ⓑ Ⓒ Ⓓ
3 Ⓐ Ⓑ Ⓒ Ⓓ

Number Correct ___/3

1 Study the idea web below.



Which sentence completes the idea web?

A Classical ballet focused on flowing, graceful movements.

B Martha's dance style was very different from classical ballet.

C Martha was one of the best dancers in America.

D Louis Horst was the musical director at Denishawn.

2 Which sentence **best** supports the central idea that Martha Graham was an innovator?

A "While there was some room for creativity, she still had to please the audience."

B "Her search led her to a job teaching at the Eastman School of Music, where she had complete control over her classes and the dance program."

C "She developed a fresh, new method of muscle control she called 'contraction and release.'"

D "In 1926, Martha formed her own dance company, the now-famous Martha Graham School for Contemporary Dance."

3 Which sentence could be added to **best** support the idea that Graham was an innovator?

A By 1927, Graham was working full-time as a dancer and choreographer.

B Graham was the first choreographer to fully collaborate with other modern artists.

C During the Depression in the 1930s, Graham sewed her dance costumes herself.

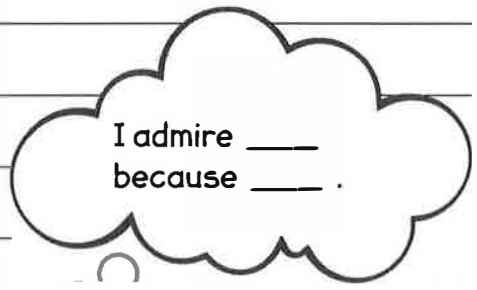
D Graham was given the title "Dancer of the Century" by *Time* magazine in 1998.

4 Describe the central idea of paragraphs 9 and 10. Identify at least **two** details the author used to develop that central idea.

✓ **Self Check** ***Go back and see what you can check off on the Self Check on page 2.***

Journal Entry 2

Who is someone you admire or look up to? Describe the person. What qualities do they have that make you respect that person?



Adjective Phrases and Clauses

Introduction Remember that phrases and clauses are groups of words that give specific information in a sentence. A **clause** has both a subject and a predicate, while a **phrase** may have one or the other but not both.

Some phrases and clauses function like **adjectives**, modifying a noun or a pronoun in a sentence.

- An **adjective phrase** tells "which one," "what kind," or "how many."

  My uncle from Chile is my mother's little brother.
  (tells which uncle)

- An **adjective clause** also tells "which one," "what kind," or "how many." It usually begins with a relative pronoun, such as *who*, *whose*, *whom*, *which*, or *that*. The relative pronoun often serves as the subject of the clause.

  He has a job that takes him all over the world.
  (tells what kind of job)

Guided Practice **Identify the underlined group of words as an adjective phrase or an adjective clause by writing *phrase* or *clause* on the line. Then draw an arrow from the phrase or clause to the noun it modifies.**

Hint

A clause can include several phrases within it. These phrases are often **prepositional phrases**, which are phrases that often describe the location, direction, or timing of something.

1. My uncle told me a funny story about a mistake <u>that he made at a hotel in Paris.</u> _____
2. Uncle Nestor, <u>whose French is not very good,</u> went to the front desk to ask for an extra blanket. _____
3. The clerk <u>at the desk</u> looked puzzled. _____
4. It turns out that Uncle Nestor had confused the word for *blanket* with the word <u>meaning "flag."</u> _____
5. The clerk thought my uncle wanted to wrap himself in a flag, <u>which would not be very warm!</u> _____

Independent Practice

For numbers 1–3, choose the group of words from each sentence that is an adjective phrase.

1 Kenya, in eastern Africa, was where Uncle Nestor lived for two years.

A for two years

B in eastern Africa

C where Uncle Nestor lived

D lived for two years

2 He also spent a lot of time in Prague, which is a city in the Czech Republic.

A a lot of time

B also spent

C in the Czech Republic

D which is a city in the Czech Republic

3 A man from the island of Crete convinced Uncle Nestor that he should spend some time there.

A that he should spend some time there

B from the island of Crete

C convinced Uncle Nestor

D A man from the island

Answer Form

1	Ⓐ	Ⓑ	Ⓒ	Ⓓ
2	Ⓐ	Ⓑ	Ⓒ	Ⓓ
3	Ⓐ	Ⓑ	Ⓒ	Ⓓ
4	Ⓐ	Ⓑ	Ⓒ	Ⓓ
5	Ⓐ	Ⓑ	Ⓒ	Ⓓ

Number Correct ___/5

For numbers 4 and 5, choose the group of words from each sentence that is an adjective clause.

4 Uncle Nestor worked for a while on a ship that sailed the Caribbean.

A that sailed the Caribbean

B for a while

C Uncle Nestor worked

D on a ship

5 The captain of the ship was a man named Ramón, whom Nestor knew from Chile.

A of the ship

B knew from Chile

C a man named Ramón

D whom Nestor knew from Chile

▶ **Try It** Read what you wrote in Part 1. Look for adjective phrases or clauses. Remember, these give specific information in a sentence. If you haven't written any, see if you can revise a sentence to be more specific.

Simple and Compound Sentences

Introduction Sentences can be described according to the number and type of clauses in them. Remember that a **clause** is a group of words that contains both a subject and a predicate. An **independent clause** is a clause that can stand alone as its own sentence.

- A **simple sentence** contains one independent clause.

subject **predicate**
[My great-grandmother Lucy] [was born in Oklahoma in 1911.]

- A **compound sentence** is made up of two or more **independent clauses.** Those clauses are joined by a **coordinating conjunction** such as *and*, *or*, *so*, *but*, or *yet*, with a comma between the first clause and the conjunction.

independent clause 1 **independent clause 2**
Lucy's sister Rosene was born in 1913 her other sister, Rotha, was born in 1915.

Guided Practice **Write *simple* next to each simple sentence. Write *compound* next to each compound sentence, then circle the conjunction that joins the two clauses.**

Hint

A simple sentence can have a compound subject or compound predicate.

Compound subject:
My brother and I loved Grandma Lucy.

Compound predicate:
She *wrote music and played the piano.*

Both sentences are simple sentences.

1 Lucy's mother and father were both schoolteachers. _____

2 They traveled all over Oklahoma, yet Lucy and her sisters never minded or complained. _____

3 As a young girl, Lucy was always one of the best students in her class. _____

4 Schools were segregated in Oklahoma in the early 1900s, so Lucy and her sisters attended schools for black children.

_____

5 Lucy's family did not have much money but lived happily.

_____

Independent Practice

For numbers 1–3, choose the sentence that answers each question.

1 Which of these is a simple sentence?

A Great-Grandma Lucy married Richmond Bell in 1937, and they moved to Arizona.

B There was little work in Oklahoma, but in Arizona they got jobs picking cotton.

C The work was difficult, yet Lucy was glad to have a job.

D She and Richmond worked hard and saved their money.

2 Which of these is a compound sentence?

A Lucy and Richmond heard about work in California.

B They could buy some land and a house in California's Central Valley.

C Folks were struggling to survive in most places, but in California they had jobs.

D Lucy and Richmond packed up, hopped on a train, and went west.

3 Which of these is a compound sentence?

A The couple found a house in the town of Dos Palos.

B Dos Palos was a small community, but the land was good for farming.

C Lucy and Richmond bought a cow, raised chickens, and grew vegetables.

D Their first child was born in Dos Palos in the summer of 1945.

Answer Form

1	Ⓐ	Ⓑ	Ⓒ	Ⓓ
2	Ⓐ	Ⓑ	Ⓒ	Ⓓ
3	Ⓐ	Ⓑ	Ⓒ	Ⓓ
4	Ⓐ	Ⓑ	Ⓒ	Ⓓ
5	Ⓐ	Ⓑ	Ⓒ	Ⓓ

Number Correct ___/5

For numbers 4 and 5, choose the answer that correctly combines each pair of simple sentences into a compound sentence.

4 World War II began. Richmond joined the army.

A World War II began but Richmond joined the army.

B World War II began, Richmond joined the army.

C World War II began, and, Richmond joined the army.

D World War II began, and Richmond joined the army.

5 With the men away, many jobs were open to women. Lucy became a librarian.

A With the men away, many jobs were open to women, so Lucy became a librarian.

B With the men away, many jobs were open to women, Lucy became a librarian.

C With the men away, many jobs were open to women, so, Lucy became a librarian.

D With the men away, many jobs were open to women so, Lucy became a librarian.

Reading

Read the passage. Then answer the questions that follow.

The Aqua-Lung—Bringing Ocean Exploration to New Depths

by Jess Therell

1 Jacques Cousteau was an adventurer and an explorer with a passion for the ocean. He wanted not only to observe what was beneath the ocean's surface, but also to protect it by making the public aware of its importance. For this reason, many people also view him as an environmentalist.

2 Cousteau accomplished many things during his distinguished career. He helped author dozens of books about the ocean. He made a number of films, and he led several expeditions aboard his ship, *Calypso*. The explorer even created an underwater camera. Along with an engineer by the name of Emile Gagnan, Cousteau also invented the Aqua-Lung. This was a device that could be used to breathe underwater. Perhaps the most important outcome of the creation of the Aqua-Lung was that it made it possible for more people to explore the ocean's depths.

The Aqua-Lung—An Overview of Its Invention

3 The inspiration for the most important part of the Aqua-Lung was a regulator designed by Emile Gagnan. It was first used for car engines. Its chief feature was that it helped supply the exact amount of fuel needed for an engine to run, reducing unnecessary usage and minimizing waste.

4 Cousteau adapted Gagnan's invention to create the "demand regulator," the defining component of the Aqua-Lung system. The regulator is the piece that fits into the diver's mouth. The other essential parts were tanks containing air that were strapped to the diver's back, as well as a hose to carry air from the tank to the regulator.

5 The design of the Aqua-Lung was completed in the early 1940s. It was available for purchase in France a short time later. Within a decade, the system was being sold in several countries throughout the world.

What Made the Aqua-Lung Different?

6 The Aqua-Lung differed from most underwater devices that existed at the time in two main ways. First, it allowed divers to stay underwater for a much longer period of time. Before the invention of the Aqua-Lung, divers could only remain underwater for a matter of minutes before their air ran out. With the Aqua-Lung, that time could be extended to an hour or even more.

7 Second, it addressed the issue of air pressure. Pressure rapidly increases as water depth increases. In order to breathe without risk of harm in deep water, any inhaled air must have the same pressure as the surrounding water. The Aqua-Lung regulator automatically adjusted the pressure of the air in the tank to equalize air and water pressure, which made diving safer.

Do Cousteau and Gagnan Deserve All the Credit?

8 While Cousteau and Gagnan's self-contained underwater breathing apparatus (SCUBA) known as the Aqua-Lung was an important new creation, it may not have been the revolutionary advancement many people seem to think. Cousteau and Gagnan built on the work of those who came before by modifying existing technologies and devices. This practice is common among inventors and scientists.

9 Support for the above claim can be found by looking at the history of ocean exploration and the devices that preceded the "invention" of the Aqua-Lung. First, it is important to note that people have always been intrigued by the ocean. Hundreds of years ago, people were already searching for ways to "breathe" underwater so they could stay beneath the surface longer and go deeper. They used hollow reeds as snorkels and wooden barrels as crude air tanks. Although these devices have little in common with the Aqua-Lung and other equipment currently on the market, they show that many people had aspirations and ideas that were similar to Cousteau's.

10 Second, the Aqua-Lung emerged after very similar devices had already been invented. By far the most notable one was the apparatus that was developed by Captain Yves Le Prieur in 1925. The main difference between it and the Aqua-Lung was air flow. Le Prieur's SCUBA released air constantly. The Cousteau/Gagnan device released it "on demand"—when the diver inhaled. Certainly, the world-famous Cousteau owed much of the credit for the creation of the Aqua-Lung to the comparatively unknown Le Prieur.

The Impact of the Aqua-Lung

11 Although Cousteau and Gagnan built on earlier technology, their invention did open the world of diving to more people. The Aqua-Lung made SCUBA diving simpler, safer, and accessible to the public. In the decades after the device became available, countless individuals adopted underwater diving as a hobby. Aqua-Lung is still a brand name that appears on many types of diving equipment, from regulators to masks to fins.

12 Cousteau's greatest legacy as a conservationist may have been giving ordinary people the tools needed to view the wonders of the ocean firsthand. Movies and books can certainly show people the beauty of marine life and explain why it needs protection. However, seeing the splendor of the ocean and some of its marvels in person is likely to be much more convincing than anything that appears on a screen or in print.

1 The following question has two parts. First, answer part A. Then, answer part B.

Part A

What does the word "regulator" mean as it is used in the passage?

A a device used to control the pressure of air

B a device used to control the flow of liquids

C a mechanism in a watch or clock by which its speed is adjusted

D a person who makes sure laws or rules are followed

Part B

Which of the phrases from the passage **best** helps the reader understand the meaning of "regulator"?

A "supply the exact amount of fuel needed for an engine to run"

B "the piece that fits into the divers mouth"

C "automatically adjusted the pressure of the air in the tank"

D "the system was being sold in several countries throughout the world"

2 Select **two** central ideas of the passage.

A Jacques Cousteau promoted the conservation of our oceans.

B Over the centuries, many people have invented devices similar to the Aqua-Lung to assist divers.

C The Aqua-Lung differs from Le Prieur's SCUBA in one important way.

D The Aqua-Lung allowed longer, safer dives.

E Cousteau and Gagnan might not deserve all the credit for inventing the Aqua-Lung.

F Aqua-Lung is still a brand of equipment sold today.

G Cousteau and Gagnan built upon previous technologies when creating their Aqua-Lung.

3 What is the author's main purpose in writing this passage?

A to give facts about a valuable invention and its impact on diving

B to make readers question Cousteau's contribution to the world of diving

C to explain the differences between the Aqua-Lung and Le Prieur's invention

D to describe how diving has changed and improved over the years

4 Read this sentence from the passage.

> Cousteau's greatest legacy as a conservationist may have been giving ordinary people the tools needed to view the wonders of the ocean firsthand.

What connotation does the phrase "ordinary people" have in this sentence?

A uneducated people

B dull and tiresome people

C people who do not know how to swim

D people who are neither explorers nor scientists

5 Below are three claims that one could make based on the passage "The Aqua-Lung—Bringing Ocean Exploration to New Depths."

Claims	Jacques Cousteau was committed to helping people learn more about the world around them.
	The Aqua-Lung was superior to other devices that were available at the time.
	Cousteau made many contributions in a variety of areas.

Circle one of the claims, and then write down **two** sentences from the passage that support the claim.

First sentence: _____

_____

_____

Second sentence: _____

_____

_____

Journal Entry 3

What is one activity that you enjoy that you can do outdoors? Imagine explaining the activity to someone who has never heard of it before. What does it involve? What equipment do you need? What makes it fun?

Adverb Phrases and Clauses

Introduction Phrases and clauses are groups of words that give specific information in a sentence. A **clause** has both a subject and a predicate, while a **phrase** does not.

Some phrases and clauses function like **adverbs**, which means they modify a verb, an adjective, or another adverb in a sentence.

- An **adverb phrase** tells "how," "when," "where," or "why." It is often a prepositional phrase.

Soccer players protective gear on the field.
(tells where; modifies verb *wear*)

Soccer gloves are with padding.
(tells how; modifies adjective *thick*)

- An **adverb clause** can also tell "how," "when," "where," or "why." It is always a dependent clause.

Gloves goalies when they catch the ball.
(tells when; modifies verb *protect*)

Goalies gloves because the ball can hurt.
(tells why; modifies verb *need*)

Guided Practice **Circle the word in each sentence that the underlined phrase or clause modifies. Write *how, when, where,* or *why* to explain what the phrase or clause tells.**

Hint

Often an adverb phrase or clause immediately follows the word it modifies, but sometimes other words separate the two. The phrase or clause may also come at the beginning of a sentence, *before* the modified word.

1. Goalies are the only players who touch the ball <u>with their hands.</u> _____

2. <u>As the ball comes toward the goal,</u> the goalie moves quickly. _____

3. If necessary, the goalie dives <u>onto the ground.</u> _____

4. Sometimes the other team scores <u>because the ball gets past the goalie.</u> _____

5. The game is over <u>after two halves of play.</u> _____

Independent Practice

In numbers 1–3, choose the information that the underlined adverb phrase or clause provides about the word or words in bold.

1 Before you sign up for a soccer team, you **should get** the gear you need to stay safe.

A how

B when

C where

D why

2 Your shin guards must fit **snugly** against your lower leg.

A how

B when

C where

D why

3 Many players also **use** a mouth guard because it protects their teeth, tongue, and jaws.

A how

B when

C where

D why

Answer Form

1 Ⓐ Ⓑ Ⓒ Ⓓ

2 Ⓐ Ⓑ Ⓒ Ⓓ

3 Ⓐ Ⓑ Ⓒ Ⓓ

4 Ⓐ Ⓑ Ⓒ Ⓓ

Number Correct ___/4

In number 4, how does the underlined group of words function in each sentence?

4 Regular running shoes are not safe for soccer.

A It is an adverb clause that modifies the noun *shoes*.

B It is an adverb phrase that modifies the verb *are*.

C It is an adverb phrase that modifies the adjective *safe*.

D It is an adverb clause that modifies the adjective *safe*.

▶ **Try It** Read what you wrote in Part 1. Can you find any adverb phrases or clauses in your own writing? Look for phrases that tell "how," "when," "where," or "why." Underline any that you find.

Using Context Clues

Introduction When you come across an unfamiliar word, look for **context clues**—nearby words that hint at the meaning of the word. Study these four types of context clues.

Context Clue	Signal Words	Example
Comparison	*or, in other words, that is to say*	Women's rights advocates, or supporters, met in Seneca Falls, New York, in 1848.
Example	*like, such as, for example, for instance*	Leaders often faced fierce opposition such as name-calling, disrespect, and even threats of harm.
Cause and Effect	*as a result of, because, and thanks to*	Because of these leaders' efforts to gain equal rights, women secured the right to vote in 1920.
Contrast and Contrast	*also, like, as well, but, yet, however, although*	Proponents of women's rights, like those who support other causes, are committed to their beliefs.

Other clues to a word's meaning are the word's position in the sentence and its part of speech.

- Below, the position of *cause* after *can* shows it is a verb, "to make something happen."

  Stirring speeches can cause people to change their minds about an issue.

- Below, the position of *cause* after *the* shows it is a noun, meaning "a goal or issue."

  Elizabeth Cady Stanton dedicated herself to the cause of women's rights.

Guided Practice **Underline a context clue that helps you understand each underlined word. Draw a line from the clue to the word. With a partner, identify each type of clue you used.**

When you come across an unfamiliar word in a sentence, don't just look in the same sentence for clues. Also look in sentences that come before and after the word.

Until 1920, suffrage, or the right to vote, was denied to women. Some prominent figures supported the cause. For example, the famous reformer Frederick Douglass spoke out for women's rights. Many small meetings took place, but a convention held in Seneca Falls in 1848 helped the movement grow. Thanks to their persistence, women won the right to vote more than seventy years later.

Independent Practice

For numbers 1–4, use context clues to figure out the meaning of each underlined word.

Answer Form

1 Ⓐ Ⓑ Ⓒ Ⓓ
2 Ⓐ Ⓑ Ⓒ Ⓓ
3 Ⓐ Ⓑ Ⓒ Ⓓ
4 Ⓐ Ⓑ Ⓒ Ⓓ

Number Correct ___/4

Women's suffrage organizations faced determined resistance from groups who argued that a woman's place was in the home, not in the political arena. Plenty of women strongly agreed that they deserved more rights. Yet many of them still deplored the idea of women having a voice in the government.

1 What does the word resistance mean in the paragraph?

A opposition
B agreement
C questions
D approval

2 Which words provide a clue to the meaning of resistance?

A "in the political arena"
B "in the home"
C "groups who argued"
D "in the government"

3 What does the word deplored mean in the paragraph?

A failed to understand
B disapproved of
C agreed with
D investigated

4 Which words provide a **contrast** clue to the meaning of deplored?

A "Plenty of women"
B "strongly agreed"
C "deserved more rights"
D "having a voice"

Read the passage. Then answer the questions that follow.

Did Franklin Really Collect Electric Fire from the Sky?

by Neve Reed

1 The story of Benjamin Franklin and his kite experiment is one that captivates people of all ages. It begins when a thunderstorm is on its way. Most of the sensible people in the area are indoors seeking shelter. But not Benjamin Franklin! He's flying a kite with a piece of metal attached to the top. His goal: to prove that lightning is a form of electricity. The story goes that a bolt of lightning soon struck his kite, traveling down the string and charging a metal key near the end. Franklin touched the key, and the "very evident electric spark" he felt proved his theory correct.

2 This experiment is much more exciting than the idea of a scientist writing a paper at a desk or working in the laboratory. However, it's also quite likely that it didn't happen, at least not in the way people imagine. Evidence for this statement comes from numerous sources, including current knowledge and correspondence written by Franklin himself.

Priestley's Account of Franklin's Experiment

3 Joseph Priestley was the man who recounted the story of Franklin's experiment conducted in 1752. June 15th is often cited as the date. An entire chapter of Priestley's book, *The History and Present State of Electricity with Original Experiments*, is devoted to Franklin's work on the similarities between electricity and lightning. He explains how Franklin planned to use a kite to draw "lightning from the clouds," and gives an account of the actual experiment.

4 There are a few points that should be made about Priestley's account. The first is that it's not clear exactly where his information comes from. Priestley says it was obtained from the "best authority," but then goes on to say that Franklin's son was the only witness present during the experiment. If the information came from Franklin himself, why didn't Priestley say so?

5 The second is that a close reading of the section that describes the actual experiment does not explicitly state that the kite was struck by *a bolt of lightning*. He does mention thunderstorms and drawing lightning from the clouds. But is it possible that "lightning" is being used interchangeably with "electrical charges" here, an assertion that is supported by the thoughts of some modern scientists? Wouldn't the actual dramatic lightning strike have been a focus of Priestley's story? If, that is, it actually took place.

Franklin's Letter

6 One of the best pieces of evidence we have comes from Franklin himself. In 1752, he wrote a letter to a friend. In it, he describes how he performed the experiment.

7 However, some believe Franklin was merely describing how he would *theoretically* use a kite to prove that electricity and lightning were one in the same. There are several details about the setup that would make actually performing the experiment impractical. These include flying the kite from inside a building, keeping the silk ribbon dry, and not allowing the twine to touch any portion of the door or window.

8 Furthermore, the letter is far from a formal description of Franklin's hypothesis, procedure, results, and conclusions. It would seem likely that Franklin would have presented his findings to the scientific community in an official report, but there is no indication that one exists.

The Danger Factor

9 One of the strongest pieces of evidence against the commonly held belief that Franklin's kite was struck by lightning is that he most likely wouldn't have survived. This was proven through an investigation conducted on a popular television program. The analysis showed that the massive amount of electricity in a bolt of lightning could have traveled down a wet piece of twine and charged a metal key at the end. However, the chances that Franklin could have touched the metal and lived to tell others about it are slim to none. Additionally, it's likely the scientist himself would have known the dangers of touching something that had been struck by lightning based on his previous work with electricity.

What Current Scientists Believe

10 Some believe that the experiment never actually took place at all. A more likely explanation based on the information available, though, is that Franklin *did* fly a kite a short time *before* a thunderstorm. The storm clouds would have contained the same static electricity found in lightning, although in much smaller amounts. These charged clouds could have produced the results described by Priestley in his well-known account. The investigation still probably wasn't the wisest idea on Franklin's part, but it is entirely possible that the scientist could have completed this version of the experiment and escaped unharmed.

1 This question has two parts. First, answer part A. Then, answer part B.

Part A

Which inference can you draw from "Did Franklin Really Collect Electric Fire from the Sky?"

A The smaller amounts of static electricity in clouds before a storm actually endangered Franklin just as much as real lightning would have.

B The idea of a death-defying experiment is thrilling, but the reality is that Franklin likely would not have risked his life for science.

C Because he focused neither on the difficulties nor dangers of flying a kite indoors, Priestley's account is weakened.

D Franklin was probably more interested in making an exciting scientific story than in harnessing the true power of electricity.

Part B

Which of the following sentences from the passage **best** supports your answer to part A?

A "The analysis showed that the massive amount of electricity in a bolt of lightning could have traveled down a wet piece of twine and charged a metal key at the end."

B "Additionally, It's likely the scientist himself would have known the dangers of touching something that had been struck by lightening based on his previous work with electricity."

C "The storm clouds would have contained the same static electricity found In lightening, although In much smaller amounts."

D "A more likely explanation based on the Information available, though, is that Franklin did fly a kite a short time before a thunderstorm."

2 Based on the information in the passage, how did Priestley's account influence some modern scientists?

A It led them to look for an alternate meaning for a term used to describe the experiment.

B It inspired them to seek the truth by watching the experiment on a television show.

C It drove them to question, in general, the way that experiments are set up.

D It convinced them that there was, in fact, no witness at all to the experiment.

3 How do the four sections with headings support the main ideas in the passage?

A Each section offers a problem with the lightning story and an alternative solution for what might have happened.

B Two of the sections focus on different causes for the writer's doubt, while the other two show how it might have happened.

C Three sections describe why the experiment probably did not occur, while the other offers a possible alternative.

D Each section compares and contrasts different accounts of the experiment, including those of people in the past and present.

4 The author states that it is quite unlikely that Franklin's kite experiment happened as we think. Which **two** sentences from the passage provide evidence for the author's belief?

A "The story of Benjamin Franklin and his kite experiment is one that captivates people of all ages."

B "However, the chances that Franklin could have touched the metal and lived to tell others about it are slim to none."

C "Some believe that the experiment never actually took place at all."

D "There are several details about the setup that would make actually performing the experiment impractical."

E "These charged clouds could have produced the results described by Priestley in his well-known account."

5 This question has two parts. First, answer part A. Then, answer part B.

Below are three claims that one might make based on the passage.

	Claims
	The story of Franklin's experiment has interested people since Franklin first described it.
	Records of the lightning experiment are not reliable.
	Franklin was a scientist who knew lightning strikes were dangerous.

Part A

Draw an X by the claim that is supported by the most relevant and sufficient evidence within "Did Franklin Really Collect Electric Fire from the Sky?"

Part B

Write down **two** sentences from the passage that **best** provide evidence to support the claim selected in part A.

First sentence: _____

_____

_____

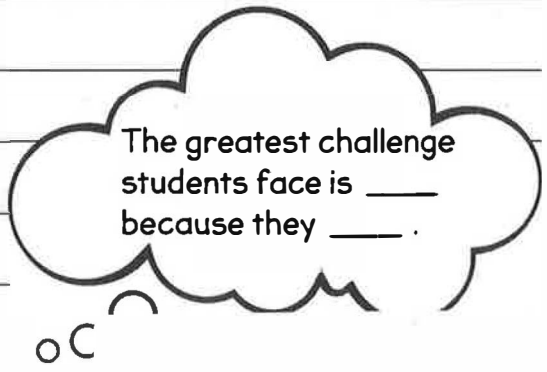
Second sentence: _____

_____

_____

Journal Entry 4

What do you think is the greatest challenge students face today? Use reasons and examples to support your opinion.



Complex and Compound-Complex Sentences

Introduction A **clause** is a group of words with both a subject and a predicate. An **independent clause** can stand alone; a **dependent clause** cannot. A dependent clause usually begins with a **subordinating conjunction** such as *while*, *because*, or *although* or a **relative pronoun** such as *who*, *that*, or *which*.

- A **complex sentence** has an independent clause and at least one dependent clause.

  While many people enjoy music, some scientists think that it also makes them smarter.

  Scientists have done studies that suggest a link between music and reading skills.

- A **compound-complex** sentence has at least two independent clauses joined by a **coordinating conjunction**, as well as one or more dependent clauses.

  Scientists have made some important discoveries about music, and this research has encouraged people who want school music programs to continue.

Guided Practice **Identify each sentence type by writing *complex* or *compound-complex*. Underline the dependent clause or clauses in each sentence.**

Hint

Remember: A complex sentence has one independent clause. A compound-complex sentence has at least two independent clauses. Both types of sentences have at least one dependent clause.

1. Researchers have found interesting connections between music and brain activity, although the results are not final.

   _____

2. When college students in one study had received musical training before age 12, they were able to remember more words from a list than students who had not received training. _____

3. In another study, students had higher reading scores after seven months if they had received daily music lessons, and their scores remained high after a year. _____

4. Most schools do not want to cut music programs, but some schools have no choice because they do not have enough money.

   _____

Independent Practice

For numbers 1–3, choose the sentence that answers each question.

Answer Form

1 Ⓐ Ⓑ Ⓒ Ⓓ
2 Ⓐ Ⓑ Ⓒ Ⓓ
3 Ⓐ Ⓑ Ⓒ Ⓓ

Number Correct ___/3

1 Which of these is a complex sentence?

A Schools have had to cut not only music but also art.

B Many students love music, and most of them like art.

C Teachers value music and art, and many have fought to keep these programs.

D While some children take private music lessons, many students can't afford them.

2 Which of these is a compound-complex sentence?

A Some schools have found ways to offer music instruction to their students.

B These schools receive money from outside organizations that donate money.

C A foundation is an organization that raises money for causes, and some foundations focus on music programs.

D Music may raise students' test scores, so these foundations see music programs as an investment in the future.

3 Which of these is a complex sentence containing more than one dependent clause?

A A foundation in Tennessee bought musical instruments for students in Memphis who could not pay for their own instruments.

B Only ten percent of families in the Memphis City Schools could afford to rent an instrument, so the foundation provided the money.

C During the next eight years, the school district was voted one of the "Best Communities for Music Education in America" four times!

D Because the foundation believed in the importance of music, all students in Memphis now have access to instruments, which has changed children's lives.

▶ **Try It** Read your response from Part 1. Look for any sentences you have written that are complex sentences or compound-complex sentences. If you haven't written any, see if you can revise one of your sentences to be either a complex sentence or a compound-complex sentence.

Misplaced Modifiers

Introduction A **misplaced modifier** is a phrase or clause that is intended to modify a certain word in a sentence but is in the wrong place. As a result, it connects the wrong words or ideas to each other and confuses the reader. For example:

We sat and talked about camping in the kitchen.

- The phrase *in the kitchen* is meant to modify *sat*, but instead it suggests that the camping happened in the kitchen. Now, look at another example.

I served breakfast to my family, which I made myself.

- The clause *which I made myself* is misplaced. It suggests that the speaker made her family, not breakfast.
- To fix a misplaced modifier, move it as close as possible to what it should modify:

We sat in the kitchen and talked about camping.

I served my family breakfast, which I made myself.

Guided Practice **Rewrite each sentence to correct the misplaced modifier.**

Hint

If a dependent clause begins with the relative pronoun *who* or *which* and gives information that is not crucial to the meaning of the sentence, use commas to set off the clause from the rest of the sentence.

Example:
The muffins, *which smelled delicious*, were still warm.

1. I baked blueberry muffins and scrambled some eggs in the oven.

_____

2. My cousin Rob told us while he ate where he and Josh had camped.

_____

3. Rob had taken my nine-year-old brother camping, who is in college.

_____

4. Rob had photos of the lovely lake on his phone near their campsite.

_____

5. We put a drawing of the lake on the fridge that Josh had made.

_____

Independent Practice

For numbers 1–4, choose the answer that best corrects the misplaced modifier in each sentence.

Answer Form

1	Ⓐ	Ⓑ	Ⓒ	Ⓓ
2	Ⓐ	Ⓑ	Ⓒ	Ⓓ
3	Ⓐ	Ⓑ	Ⓒ	Ⓓ
4	Ⓐ	Ⓑ	Ⓒ	Ⓓ

Number Correct ___/4

1 Rob told us about hearing a strange noise in the night after breakfast.

A After breakfast, Rob told us about hearing a strange noise in the night.

B Rob told us about hearing a strange noise after breakfast in the night.

C After breakfast, Rob told us in the night about hearing a strange noise.

D In the night, Rob heard a strange noise that after breakfast he told us about.

2 Dad let Josh borrow his fishing rod to take on the trip, which was old but still worked.

A Josh borrowed for the trip, which was old but still worked, Dad's fishing rod.

B For the trip, Dad let Josh borrow his fishing rod, which was old but still worked.

C To take on the trip, Josh borrowed a fishing rod from Dad, which was old but still worked.

D The fishing rod that Josh borrowed to take on the trip from Dad was old but still worked.

3 Rob told us how Josh had caught a fish as he was washing the dishes.

A Rob as he was washing the dishes told us how Josh had caught a fish.

B Josh told us that, as Rob was washing the dishes, he had caught a fish.

C Josh had caught a fish, and Rob was washing the dishes and told us about it.

D As Rob was washing the dishes, he told us how Josh had caught a fish.

4 Next summer my cousin invited me to go camping by the lake with his family.

A My cousin invited me to go camping by the lake with his family next summer.

B By the lake next summer, my cousin invited me to go camping with his family.

C My cousin by the lake invited me next summer to go camping with his family.

D My cousin with his family next summer invited me to go camping by the lake.

Read the essay. Then answer the questions that follow.

The Middle of Nowhere

by Brendan Wolfe

1 Every year my dad's family gathers up its members from the four corners of the known world and invites them home for a reunion. Home for us is a treeless patch of landscape that we have fondly dubbed the Middle of Nowhere. This is where Dad and his sisters grew up, and in addition to a patchwork quilt of corn and soybean fields, the area features an occasional rotten-wood barn and steel silo. Before I was born, my family all moved away, and at that very moment time seems to have stopped in this place. The corn and beans must have been planted by someone, but that's the only evidence that people still live here.

2 Although we live only a few miles down the Interstate, my dad is the only one who knows for sure how to get back to his old home. Actually, it might be an exaggeration to say that he knows for sure. As often as not he gets us all lost, which is why we call it the Middle of Nowhere in the first place.

3 Anyway, this year's reunion was a classic example. Dad piled my brother and me into our station wagon, along with folding chairs, badminton gear, and a cooler full of sandwiches, and we weighed anchor for the Middle of Nowhere. Like a captain of the high seas, he welcomed us aboard ship and then gruffly warned us to maintain our discipline lest we be forced to walk the plank.

4 "Can we use a GPS this year, Dad?" I asked. My friends' parents used them and they never got lost.

5 "I insist that you call me captain," Dad snapped, before indicating that all electronic directional devices were absolutely *verboten*.

6 "What does 'verboten' mean?" I asked.

7 Just then we passed an old gas station. By "old," I mean ancient—older even than my dad. The gas pumps were candy-apple red and round at the top, and they looked nothing like they're supposed to. (Where, for instance, are you supposed to swipe your credit card?) The main building, meanwhile, leaned a bit and to my eyes was just barely standing.

8 "This is where we used to go for a soda pop when I was a kid," Dad said, excitedly pointing at the old wreck.

9 "Why do you say 'soda pop'?" I asked, but Dad, as usual, ignored me. Instead, he explained that this is where we turned off the Interstate.

10 Soon we were deep amongst the tall rows of corn. At the bottom of a hill, it was impossible to see where you were, but the landscape rolled, like the waves of an ocean. When you crested a wave, you could see for miles.

11 "You see that crossroads?" Dad asked as the out-of-breath Pontiac finally reached the peak of a particularly steep hill. At first it looked no different from any other crossroads, whether here or anywhere else in the world. Then I noticed a slight anomaly: the dirt roads did not meet at quite a right angle. Instead, one of them arrived having had to scoot around one of those rotten-wood barns. This was Danny Flynn's barn, apparently, and Danny Flynn had been born ornery. When the county wanted to cut its road through Danny Flynn's property, Danny Flynn folded his arms, spat in the dirt, and said, "No, sir." No matter how much money the county offered, the old farmer refused to move his barn. He even amended his last will and testament to make sure that no relative of his ever moved it, either.

12 "We only ever called him Danny Flynn," Dad said. "Never Mr. Flynn. It just seemed more respectful somehow. We always knew he fancied your grandmother, doing odd jobs for her whenever he could. Helping her out—that was the only time the old man ever smiled, I think."

13 "What do you mean 'fancied'?" I asked.

14 "We're close now," my dad said. Past Danny Flynn's barn we should turn right at the ball field where Dad played shortstop on Saturdays, then, after a quarter of a mile, the "old homestead," as Dad called it, should be just over the hill. "Land ho!" Dad always called when he spied it.

15 As the Pontiac puffed along, however, the ball field never showed up. "Where did it go?" I wondered aloud, and then my little brother, who prefers snoozing through car trips, startled awake. "What's going on?" he said, rubbing his eyes.

16 "The best-laid plans of mice and men often go awry," Dad mumbled, pulling the car over.

17 When we looked at him quizzically, he admitted that we must be lost. "My memory's not what it used to be," he explained.

18 "Then why not use a map?" I snorted in disgust. Those endless stalks of green corn seemed at this point to be mocking me.

19 "You still don't get it, do you?" Dad said after a long pause. "My memories *are* my map."

20 I'm not afraid to admit that this, finally, shut me up. After all, when you're in the Middle of Nowhere, what better than a map that tells stories?

---

1 This question has two parts. First, answer part A. Then, answer part B.

Part A

What does the word "ornery" mean as it is used in paragraph 11 of the essay?

A unruly

B grouchy

C contrary

D awkward

Part B

Which of the phrases from the essay **best** helps the reader understand the meaning of "ornery"?

A "folded his arms"

B "the old farmer refused to move his barn"

C "We always knew he fancied your grandma"

D "that was the only time the old man ever smiled,"

2 Read the partial summary of "The Middle of Nowhere."

A father travels with his family to a family reunion. Along the way, he points out places that he remembers from his childhood. Each of these settings is accompanied by a story about people or events of his past.

Select **two** sentences that should be included in a summary of key ideas of the essay.

A They pass an old gas station where he used to buy soda pop.

B The son is frustrated by his dad's unwillingness to use aids to find the way.

C The father grew up in an area called the Middle of Nowhere.

D The father may not recall the way to his childhood home, but he has no difficulty recalling the past.

E They talked about Danny Flynn who fancied the children's grandmother.

F They all piled into the old Pontiac station wagon for the long trip.

3 The following statement is a conclusion based on the information in the text.

The narrator's father is not comfortable with the fact that he does not know the area as well as he used to.

Which sentence from the essay **best** supports this conclusion?

A "This is where Dad and his sisters grew up, and in addition to a patchwork quilt of corn and soybean fields, the area features an occasional rotten-wood barn and steel silo."

B "Although we live only a few miles down the Interstate, my dad is the only one who knows for sure how to get back to his old home."

C "'This is where we used to go for a soda pop when I was a kid,' Dad said, excitedly, pointing at the old wreck."

D "'The best-laid plans of mice and men often go awry,' Dad mumbled, pulling the car over."

4 Which statement **best** expresses the narrator's point of view at the end of the essay?

A He is embarrassed by his father's childhood home.

B He appreciates the opportunity to learn more about his father.

C He worries that his father is aging and his memory is failing.

D He is amused by his father's reflections on the past.

5 Why do the narrator and his family refer to his dad's childhood home as "the Middle of Nowhere"? Use **two** details from the essay to support your response.

Journal Entry 5

If you could go anywhere in the world, where would you want to go? Explain what is so appealing about that location, what you'd want to see, and what you'd want to do while you were there.

Using Different Kinds of Sentences

Introduction Building your sentences in different ways can help you eliminate wordiness and make clear connections between ideas. There are four basic types of sentences:

Type	Definition	Example
Simple	has one independent clause	Jousting was a medieval sport.
Compound	has two or more independent clauses	Medieval knights had to be experts in battle, and jousting was one way to prepare for battle.
Complex	has one independent clause and one or more dependent clauses	Although jousting was a form of entertainment, it also let knights practice important skills.
Compound-complex	has two or more independent clauses and one or more dependent clauses	Jousting wasn't as dangerous as combat, but a knight could still be hurt when he fell off his horse.

Varying the sentence types when you write can also make your writing more interesting to read.

Guided Practice **Underline the independent clause or clauses in each sentence. Then write *simple*, *compound*, *complex*, or *compound-complex* to identify the sentence type.**

Hint

The independent and dependent clauses in a complex or compound-complex sentence may be in any order. For instance, the dependent clause may come first.

Example:
While a knight had to be brave, he also had to be respectful, and he had to be loyal to his king.

1 A knight's training began early in life, and it ended in the knight's teenage years. _____

2 Jousts kept knights in great condition for real battles.

_____

3 When spectators attended jousts, they often rooted for a favorite knight. _____

4 Although jousts often ended in bloodshed, the matches were a popular part of life, and townspeople regularly gathered to watch these events. _____

5 Jousting competitions were usually part of a larger tournament that included other events as well. _____

Independent Practice

For numbers 1–3, choose the best way to combine the sentences to eliminate repetition and make the relationships between ideas clear.

Answer Form

1 Ⓐ Ⓑ Ⓒ Ⓓ
2 Ⓐ Ⓑ Ⓒ Ⓓ
3 Ⓐ Ⓑ Ⓒ Ⓓ

Number Correct ___/3

1 Jousts could be dangerous. Often knights broke bones. This would happen even though knights wore armor.

A Although jousts could be dangerous, knights wore armor and still broke bones.

B Because knights wore armor, they broke bones, and jousts were still dangerous.

C Jousts could be dangerous, and although knights wore armor, they still often broke bones.

D Because jousts could be dangerous, knights broke bones, but knights wore armor.

2 Special lances for jousting had to be made to avoid serious injury. This was because battle lances were such dangerous weapons.

A Battle lances were such dangerous weapons that special lances for jousting had to be made to avoid serious injury.

B Special lances for jousting had to be made to avoid serious injury although battle lances were such dangerous weapons.

C Because the special lances for jousting had to be made to avoid serious injury, battle lances were dangerous weapons.

D Battle lances were such dangerous weapons because special lances for jousting had to be made to avoid serious injury.

3 Knights had many obligations and duties. They had to be strong and kind.

A Knights had to be strong and kind, but they had many duties and obligations.

B Knights had many duties and obligations, and they also had to be strong and kind.

C Knights had many duties and obligations because they had to be strong and kind.

D Although they had to be strong and kind, knights had many duties and obligations.

▶ **Try It** Read what you wrote in Part 1. Can you find at least three different kinds of sentences? Look for simple sentences, compound sentences, complex sentences, and compound-complex sentences.

Greek and Latin Word Parts

Introduction Many English words have Greek and Latin roots and affixes.

- A **root** is a word part that contains the core meaning of the word. In the word *science*, for example, the root *sci* means "knowledge."

Root	Meaning	Root	Meaning
bell	"war"	flect, flex	"bend"
tract	"draw, pull"	sci	"knowledge"
hydr	"water"	form	"shape, form"

- An **affix** is a word part added to a root. Affixes include **prefixes**, which come before the root, and **suffixes**, which come after the root.

Prefix	Meaning	Suffix	Meaning
de-, dis-	"do the opposite"	-ous, -ious	"characterized by"
re-	"again, anew"	-ent	"inclined to"
con-	"with"	-able, -ible	"capable of, tending"

Guided Practice **Read the passage. Circle the roots in the underlined words. On a separate piece of paper, write the meanings of the word parts and define the word.**

Hint

A root's meaning will sometimes not fit well with the definition of the word. You'll need to make an inference (an educated guess) to see the connection between the root and the meaning.

My dog Sam has a belligerent personality. The moment he becomes conscious of a cat, he gives chase. No matter what I do to distract him, nothing works. The problem is intractable.

One day, Sam approached a stray cat, which raised its spiky fur, bared its teeth, and took off after *him*. Sam returned later, dehydrated, hot, and humble. But did Sam reform his behavior? No! My dog is just too inflexible to change his habits.

Independent Practice

For numbers 1–4, read each sentence. Then answer the question.

Answer Form

1 Ⓐ Ⓑ Ⓒ Ⓓ
2 Ⓐ Ⓑ Ⓒ Ⓓ
3 Ⓐ Ⓑ Ⓒ Ⓓ
4 Ⓐ Ⓑ Ⓒ Ⓓ

Number Correct ___/4

1 When I bring Sam his leash for a walk, his response is effusive.

The prefix *ef-* means "out," and the root *fus* means "pour." What is the meaning of effusive as it is used in the sentence?

A showing quiet pleasure

B showing great enthusiasm

C showing boredom and weariness

D showing confusion

2 Being a quadruped, Sam is often frustrated by my slow pace.

The prefix *quadr-* means "four," and the root *ped* means "foot." What is the meaning of quadruped as it is used in the sentence?

A a four-foot-long animal

B a four-footed animal

C a four-speed bicycle

D a four-wheeled scooter

3 When we turn toward home, Sam reacts badly to the brevity of our outing.

The root *brev* means "brief," and the suffix *-ity* means "degree." What is the meaning of brevity as it is used in the sentence?

A slowness

B suddenness

C shortness

D frequency

4 He sits down on the sidewalk and is tenacious about staying there.

The root *ten* means "hold," and the suffix *-ious* means "characterized by." What is the meaning of tenacious as it is used in the sentence?

A happy and content

B full of rage

C unable to move

D unwilling to give in

Read this excerpt from a back-to-school speech. Then answer the questions that follow.

from "The President's Speech to Students"

by President Barack Obama

1 You're this country's future. You're young leaders. And whether we fall behind or race ahead as a nation is going to depend in large part on you. So I want to talk to you a little bit about meeting that responsibility.

2 It starts, obviously, with being the best student that you can be. Now, that doesn't always mean that you have to have a perfect score on every assignment. It doesn't mean that you've got to get straight As all the time—although that's not a bad goal to have. It means that you have to stay at it. You have to be determined and you have to persevere. It means you've got to work as hard as you know how to work. And it means that you've got to take some risks once in a while. You can't avoid the class that you think might be hard because you're worried about getting the best grade if that's a subject that you think you need to prepare you for your future. You've got to wonder. You've got to question. You've got to explore. And every once in a while, you need to color outside of the lines.

3 That's what school is for: discovering new passions, acquiring new skills, making use of this incredible time that you have to prepare yourself and give yourself the skills that you're going to need to pursue the kind of careers that you want. And that's why when you're still a student you can explore a wide range of possibilities. One hour you can be an artist; the next, an author; the next, a scientist, or a historian, or a carpenter. This is the time where you can try out new interests and test new ideas. And the more you do, the sooner you'll figure out what makes you come alive, what stirs you, what makes you excited—the career that you want to pursue....

4 So that's a big part of your responsibility, to test things out. Take risks. Try new things. Work hard. Don't be embarrassed if you're not good at something right away. You're not supposed to be good at everything right away. That's why you're in school. The idea, though, is that you keep on expanding your horizons and your sense of possibility. Now is the time for you to do that. And those are also, by the way, the things that will make school more fun.

5 Down the road, those will be the traits that will help you succeed, as well—the traits that will lead you to invent a device that makes an iPad look like a stone tablet. Or what will help you figure out a way to use the sun and the wind to power a city and give us new energy sources that are less polluting. Or maybe you'll write the next great American novel....

6 But I also want to emphasize this: With all the challenges that our country is facing right now, we don't just need you for the future; we actually need you now. America needs young people's passion and their ideas. We need your energy right now. I know you're up to it because I've seen it. Nothing inspires me more than knowing that young people all across the country are already making their marks. They're not waiting. They're making a difference now....

7 There are students like Will Kim from Fremont, California, who launched a nonprofit that gives loans to students from low-income schools who want to start their own business. Think about that. So he's giving loans to other students. He set up a not-for-profit. He's raising the money doing what he loves—through dodgeball tournaments and capture-the-flag games. But he's creative. He took initiative. And now he's helping other young people be able to afford the schooling that they need....

8 The point is you don't have to wait to make a difference. Your first obligation is to do well in school. Your first obligation is to make sure that you're preparing yourself for college and career. But you can also start making your mark right now. A lot of times young people may have better ideas than us old people do anyway. We just need those ideas out in the open, in and out of the classroom....

9 When I meet young people like yourselves, when I sit and talk to [a student at this school], I have no doubt that America's best days are still ahead of us, because I know the potential that lies in each of you. Soon enough, you will be the ones leading our businesses and leading our government. You will be the one who are making sure that the next generation gets what they need to succeed. You will be the ones that are charting the course of our unwritten history. And all that starts right now—starts this year....

Answer Form

1 Ⓐ Ⓑ Ⓒ Ⓓ
2 Ⓐ Ⓑ Ⓒ Ⓓ
3 Ⓐ Ⓑ Ⓒ Ⓓ

Number Correct ___/3

1 Which of these statements is **not** supported by the remarks made in President Obama's speech?

A Work hard in school and try out new possibilities.

B While in school, acquire a variety of skills and interests.

C Figure out different ways to become energetic leaders.

D Explore a wide range of ideas and career options.

2 What evidence from the speech **best** shows how students can prepare themselves for the future?

A Students need to act responsibly during their time in school.

B Students should focus on courses that will help them earn good grades.

C Students should realize that they will not excel at everything that they try.

D Students need to try new possibilities to discover what excites them.

3 Which sentence from the passage **best** supports the idea that President Obama thinks students must take responsibility for their own futures?

A "Now, that doesn't always mean that you have to have a perfect score on every assignment."

B "Down the road, those will be the traits that will help you succeed, as well—the traits that will lead you to invent a device that makes an iPad look like a stone tablet."

C "Your first obligation is to make sure that you're preparing yourself for college and career."

D "Soon enough, you will be the ones leading our businesses and leading our government."

4 Read the statement below, and then answer the question that follows it.

President Obama believes that creativity is a valuable trait for people to have.

Explain how you can tell that the above statement is true. Write a paragraph responding to this question. Use at least **two** details from the passage to support your response.

Self Check

Journal Entry 6

Write a journal entry describing one of your days from the perspective of someone or something else (ex: a pet, someone who lives with you, a sibling). Be sure to use adjectives, or descriptive words, that help your reader feel like they can imagine the day.

Commas with Coordinate Adjectives

Introduction When you use more than one adjective to describe a noun, sometimes the adjectives need commas between them—but sometimes they do not.

- If the adjectives make sense no matter what order you put them in, they are called **coordinate adjectives.** Coordinate adjectives should be separated by a comma.

  The Civil War was captured on film by brave, dedicated photographers.

  (Reordering the adjectives as dedicated, brave would also make sense.)

- If the adjectives would *not* make sense if reordered, do not put a comma between them.

  The Civil War was the first major conflict to be widely photographed.

  (Reordering the adjectives as major first would not make sense.)

- In a series of three or more adjectives, some might be coordinate adjectives and others might not. Put in commas only where they are needed.

  The photos offered many fascinating, realistic images of wartime.

Guided Practice **Correct each sentence by adding and deleting commas as needed.**

Hint

If you can add the word *and* between the adjectives, they are coordinate adjectives and must be separated by commas.

1. The Civil War proved to be a remarkable important moment in the history of photography.

2. Photographers had to carry their heavy bulky, camera equipment with them as they traveled.

3. The pictures showed young tired, wounded soldiers surviving in difficult, wartime conditions.

4. The photographers inspired numerous, future, news journalists.

5. The many terrible dangers of war were depicted, but so were strong courageous acts of leadership.

Independent Practice

For numbers 1–5, choose the answer that best shows how the underlined part of each sentence should be rewritten. If the sentence is already correct, choose D.

Answer Form

1	Ⓐ	Ⓑ	Ⓒ	Ⓓ
2	Ⓐ	Ⓑ	Ⓒ	Ⓓ
3	Ⓐ	Ⓑ	Ⓒ	Ⓓ
4	Ⓐ	Ⓑ	Ⓒ	Ⓓ
5	Ⓐ	Ⓑ	Ⓒ	Ⓓ

Number Correct ___/5

1 Photographers took pictures of bearded, Union generals posing for the camera.

A bearded Union generals

B bearded, Union, generals

C bearded Union, generals

D correct as is

2 Courageous loyal foot soldiers were also photographed on the battlefield.

A Courageous loyal, foot soldiers

B Courageous, loyal foot soldiers

C Courageous, loyal, foot soldiers

D correct as is

3 Images were taken by special roving camp photographers who traveled with troops.

A special, roving camp photographers

B special roving, camp photographers

C special, roving, camp photographers

D correct as is

4 When soldiers died, photographs provided cherished mementos for proud, loving, family members.

A proud loving family members

B proud loving, family members

C proud, loving family members

D correct as is

5 Photographer Alexander Gardner provided the first, prolonged coverage of the war.

A first, prolonged, coverage

B first prolonged coverage

C first prolonged, coverage

D correct as is

▶ **Try It** Re-read your response from Part 1. Look for any coordinate adjectives that you used. If you find any, check to make sure you've added a comma between them. If you didn't, see if you can add one to make your writing even livelier!

Eliminating Wordiness and Redundancy

Introduction Good writers know that every word counts. When revising your writing:

- **Use fewer words.** Edit your writing to remove unnecessary words and phrases.

Delete Phrases That Don't Add Meaning	*Wordy:* This paper will focus on the Great Migration and the reason why it had a huge impact on urban life in the United States. *Concise:* The Great Migration had a huge impact on urban life in the United States.
Use One Word in Place of a Phrase	*Wordy:* During the time that World War I broke out, factories in Northern cities had a need for more workers. *Concise:* When World War I broke out, factories in Northern cities needed more workers.

- **Delete repeated information.** Delete or combine words and phrases that repeat ideas.

Avoid Repeating Words or Ideas	*Repetitious:* By the end of 1919, a million African Americans had left, leaving the South for cities and urban areas like Chicago, New York, and Detroit. *Better:* By the end of 1919, a million African Americans had left the South for cities like Chicago, New York, and Detroit.

Guided Practice **Revise each sentence to eliminate wordiness and repeated ideas.**

Hint

Ask yourself: Which words can I delete without changing the main idea? Which phrases can I replace with just one word?

1 The Great Migration was the largest, biggest mass movement of people in U.S. history.

_____

_____

2 In the early 1900s at the turn of the century, most African Americans lived in the South.

_____

_____

3 They worked as sharecroppers, farming the land as part of the sharecropper system.

_____

_____

Independent Practice

For numbers 1–3, choose the answer that best revises the sentence without changing its meaning.

Answer Form

1 Ⓐ Ⓑ Ⓒ Ⓓ
2 Ⓐ Ⓑ Ⓒ Ⓓ
3 Ⓐ Ⓑ Ⓒ Ⓓ

Number Correct ___/3

1 African-American people and families wanted to live free from poverty and violence.

A African-American people and families wanted to live free from violence.

B African-American families were free from poverty.

C African-American people and families wanted to live free.

D African-American families wanted freedom from poverty and violence.

2 Newspaper ads telling about jobs that were located in the North and West were able to convince people to move to those areas of the country.

A Newspaper ads for jobs in the North and West convinced people to move to those regions.

B Newspaper ads for jobs were able to convince people to move to those areas of the country.

C Newspapers that were located in the North and West convinced people to move to those regions.

D Newspaper jobs were able to convince people to move to those areas of the North and West.

3 Sometimes one family member moved first; later the whole family was reunited together.

A Sometimes one family moved; later they were reunited together.

B Sometimes one family member moved and was reunited.

C Sometimes one family member moved first; later the whole family was reunited.

D Sometimes one family member and the whole family reunited later.

▶ **Try It** Read your response to Part 1. Remember that strong writers will review their writing to make sure they don't have any unnecessary or repeated words and phrases. As you read it, draw a line through or revise any ideas that repeat or that don't help you make your point.

Read the article. Then answer the questions that follow.

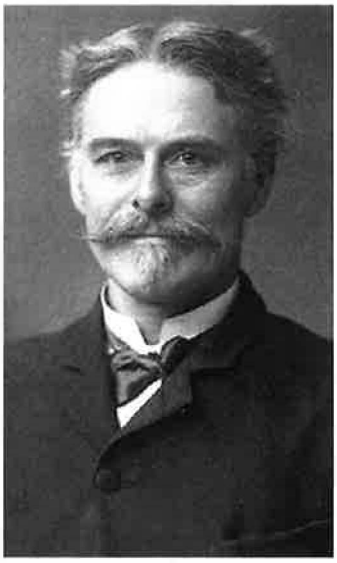
The Bone Wars

by J. R. Hill

1 If you've spent any time in grocery checkout lines, you've probably seen magazines with pictures of celebrities behaving badly toward each other. You might believe that scientists would be above that sort of thing, but you'd be wrong. About 150 years ago, two scientists started a nasty feud that lasted for decades—and brought to light some of the most spectacular creatures that ever walked the earth.

2 Edward Cope and Othniel Marsh were paleontologists—scientists who study extinct life-forms, including dinosaurs. They met in 1864, when their careers were starting. Paleontology was a young science in the United States, and only a few dinosaurs had been discovered in North America.

Othniel Marsh



Edward Cope

3 Cope and Marsh were friendly at first, but their relationship quickly soured. In 1868, Cope and a team of hired men were digging up dinosaurs in New Jersey. Marsh journeyed there and stayed with Cope for a few weeks. Things seemed to go well, but after Marsh left, Cope learned that his guest and the team foreman had made a deal. In exchange for money, the foreman would send new fossils to Marsh instead of Cope. Marsh had fired the first shot in what scientists would come to call the "Bone Wars."

4 The war heated up fast. In 1869, Cope wrote an article describing a newly found extinct sea reptile he named *Elasmosaurus*. Cope included a drawing of the creature's skeleton. Another scientist soon pointed out that Cope had mistakenly stuck the beast's skull on its tail. Cope was humiliated, and Marsh crowed about the blunder to anyone who would listen. Shortly after, each man began publishing a string of scientific articles viciously attacking the other's ideas.

5 Cope and Marsh's thirst to outdo each other spilled into their fieldwork. Throughout the 1870s and 1880s, they led and sent teams into lawless regions of the western United States to hunt for dinosaur bones. The teams were told to slow and disrupt each other's work through bribery, stealing, and rock-throwing. The teams even used dynamite to blow up cliffs and bury fossils to keep discoveries from falling into each other's hands. To this day, scientists wonder what fantastic discoveries lay beneath tons of rubble.

6 In addition to sabotage, Cope and Marsh forced their teams to dig up and transport bones quickly. Such speed damaged many specimens, but each man wanted the credit of making the first discoveries of new species. Because they published their findings as quickly as possible, they made many mistakes. Marsh, for example, accidentally stuck the head of one dinosaur (*Camarasaurus*) on to the neck of another dinosaur (*Apatosaurus*) and thought he had discovered a new dinosaur—*Brontosaurus.* Unlike Cope's mistake with *Elasmosaurus*, paleontologists didn't discover and undo Marsh's *Brontosaurus* blunder for nearly 100 years.

7 Until the mid-1880s, only scientists knew about Cope and Marsh's fight. But when Cope ratted out Marsh to the *New York Herald*, their battle spilled out into the world at large. Cope and Marsh assaulted each other through letters published in the newspaper. For a time, they were as famous as any celebrities of today. And even when the public eventually stopped caring, the feud didn't cease. The two men of science took swipes at each other until Cope's death in 1897. Even in death, Cope kept up the attack. He donated his skull to science and asked that his brain size be compared with Marsh's. (Scientists of that time believed that a person with a large brain was smarter than a person with a small one.) For whatever reason, Marsh did not accept Cope's challenge.

8 The Bone Wars have a mixed legacy. On the one hand, American paleontology got a bad reputation from Cope and Marsh's cutthroat behavior. And the mistakes they made in their rush for glory slowed the progress of paleontology for many years. But the Bone Wars also produced a mountain of raw material. Cope and Marsh discovered more than 130 dinosaur species. Their teams dug up so many bones that scientists are still learning new things about them. And many of their most famous discoveries, including *Stegosaurus*, *Allosaurus*, *Diplodocus*, and *Triceratops*, fire the imaginations of children (and more than a few adults) worldwide. Perhaps paleontology would have been worse off had the two men actually gotten along.

Answer the questions. Mark your answers to questions 1–7 on the Answer Form to the right.

Answer Form

1A	Ⓐ	Ⓑ	Ⓒ	Ⓓ	4	Ⓐ	Ⓑ	Ⓒ	Ⓓ
1B	Ⓐ	Ⓑ	Ⓒ	Ⓓ	5	Ⓐ	Ⓑ	Ⓒ	Ⓓ
2	Ⓐ	Ⓑ	Ⓒ	Ⓓ	6	Ⓐ	Ⓑ	Ⓒ	Ⓓ
3	Ⓐ	Ⓑ	Ⓒ	Ⓓ	7	Ⓐ	Ⓑ	Ⓒ	Ⓓ

Number Correct ___/8

1 Answer Parts A and B below.

Part A

The article says that paleontology was a young science in the United States in the mid-1800s. How knowledgeable about the field were paleontologists of the time?

A They were more informed than those in other nations.

B They were the greatest experts of the field at the time.

C They were not very knowledgeable about their field.

D They were just as knowledgeable as any other scientists.

Part B

Which detail from the article **best** supports the answer to Part A?

A "Another scientist soon pointed out that Cope had mistakenly stuck the beast's skull on its tail."

B "Cope was humiliated, and Marsh crowed about the blunder to anyone who would listen."

C "Because they published their findings as quickly as possible, they made many mistakes."

D "Unlike Cope's mistake with *Elasmosaurus*, paleontologists didn't discover and undo Marsh's *Brontosaurus* blunder for nearly 100 years."

2 Marsh and Cope had a stormy relationship. Which event was the **most** important influence on this relationship?

A Marsh paid Cope's team foreman to send new fossils to him.

B Marsh claimed he was the first to discover a mistake by Cope.

C Groups of their workers threw rocks at each other.

D Cope and Marsh attacked each other in the newspapers.

3 Which sentence **best** describes how the two paleontologists influenced each other?

A Cope and Marsh would do almost anything to become public celebrities.

B The competition between Cope and Marsh pushed each man to make amazing discoveries.

C Cope and Marsh's mistakes destroyed their credibility as paleontologists.

D Cope and Marsh would have discovered even more dinosaur bones if they had worked together.

4 Each man thought he was better in his field than the other. Which evidence from the text **best** supports the inference that Cope also thought he was smarter than Marsh?

A Cope told the *New York Herald* about Marsh's actions.

B Cope described a newly found extinct sea reptile he named *Elasmosaurus*.

C Cope wanted his brain size to be compared with Marsh's after death.

D Cope published scientific articles viciously attacking Marsh's ideas.

5 A good summary includes only important details. Which of the following details is **not** important enough to include in a summary of the article?

A The rivalry between Cope and Marsh affected their fieldwork.

B Cope and Marsh brought to light some amazing discoveries.

C Each man's rush to claim glory caused mistakes to be made.

D The men gained fame due to their letters in the *New York Herald*.

6 The last paragraph says that the Bone Wars have a mixed legacy. How does the author develop this idea?

A by concentrating on the mistakes that Cope and Marsh made

B by presenting the pros and cons of Cope and Marsh's rivalry

C by giving the causes and effects of Cope and Marsh's rivalry

D by stating in sequence events detailing Cope and Marsh's rivalry

7 Which of the following lists only the **main topics** of "The Bone Wars" in the correct order?

A Cope and Marsh meet in 1864.
Their feud begins in 1868.
Cope publishes a mistake in 1869.
The feud moves into fieldwork during the 1870s and 1880s.
Cope dies in 1897, leaving Marsh the winner of the Bone Wars.

B Marsh begins the feud.
The feud is fought through scientific articles.
The fighting turns violent in fieldwork out West.
Cope dies and wants his brain compared with Marsh's.
The Bone Wars both helps and hurts the reputation of paleontology.

C The feud turns Cope and Marsh into celebrities.
Marsh secretly tries to hire Cope's foreman.
Cope publishes a mistake in a scientific journal.
Cope and Marsh begin fighting the Bone Wars.
Cope dies, so Marsh wins the Bone Wars.

D A feud begins between Cope and Marsh.
Cope and Marsh compete in both articles and fieldwork.
The fight leads to both mistakes and damaged specimens.
The feud goes public and ends only with Cope's death.
The Bone Wars slowed scientific progress but provided valuable fossils.

8 The last paragraph of the article states that "American paleontology got a bad reputation from Cope and Marsh's cutthroat behavior." Explain why this was true. Cite two pieces of text evidence to support your inference.

9 Write a paragraph in which you analyze the positive influence Cope and Marsh's rivalry had on the field of paleontology, both in their own time and today. Support your analysis with details from the article.

Grade 7

MATH

Understanding Addition with Negative Integers

1. Between the time Iko woke up and lunchtime, the temperature rose by 11°. Then by the time he went to bed, the temperature dropped by 14 °.

   Write an addition expression for the temperature relative to when Iko woke up.

   _____

   Draw a model using integer chips and circle the zero pairs.

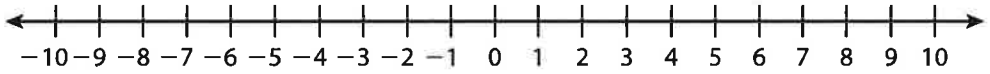
   What is the value of the remaining integer chips after the zero pairs are removed?

   _____

   What is the net change in the temperature relative to when Iko woke up?

   _____

2. Complete the number line model to find $(-5) + 6$.



$(-5) + 6 =$ _____

How would the number line model be different if you wanted to find $(-5) + (-6)$?

_____

_____

Understanding Addition with Negative Integers *continued*

➤ **For problems 3–5, consider the sum 4 + (−8).**

3. Explain how you can use a number line to find the sum.

4. Explain how you can use chips to determine the sum.

5. Does it matter what order you add the numbers in the problem? Explain how chips and number lines support your answer.

6. Write an addition expression that has a value of −8.

Understanding Subtraction with Negative Integers

1. Mary takes 9 grapes from Rohin and then decides to give 4 back.

Write a subtraction problem to describe how many grapes Rohin has. _____

Draw a model for the subtraction problem using integer chips.

How many negative integer chips did you cross out? _____

Write the subtraction as addition. _____

Draw a model for the addition problem using integer chips.

How do the two integer chip models show that $-9 - (-4)$ is the same as $-9 + 4$?

What is the change in the number of grapes Rohin has? _____

Understanding Subtraction with Negative Integers *continued*

2 Jin is 3 floors above ground level in a hotel. Leila is on a parking level of the hotel that is 4 floors below ground level. How many floors apart are they? Draw a number line model to show $3 - (-4)$.

What is $3 - (-4)$? _____

What is the meaning of this answer in the context of the problem?

Rewrite $3 - (-4)$ as an addition problem. _____

3 The variables a and b represent positive numbers. When you find the difference $a - (-b)$, do you expect the result to be less than or greater than a? What if a is negative and b is positive? Explain.

Understanding Multiplication with Negative Integers

➤ **Practice multiplying negative integers.**

1. Find each product. Then describe any patterns you notice.

$3 \cdot (-7) =$ _____

$2 \cdot (-7) =$ _____

$1 \cdot (-7) =$ _____

$0 \cdot (-7) =$ _____

$(-1) \cdot (-7) =$ _____

$(-2) \cdot (-7) =$ _____

$(-3) \cdot (-7) =$ _____

2. Solve each problem. Explain how you determined the sign of the products.

$(-3)(9) =$ _____

$(-8)(-5) =$ _____

$(-5)(-6) =$ _____

$(-1)(2)(-6) =$ _____

$(-2)(-4)(-7) =$ _____

$(-3)(-4)(-3)(-1) =$ _____

Understanding Multiplication with Negative Integers *continued*

3 Use the distributive property to show why the product $(-6)(-3)$ is positive. The first step is done for you.

$(-6)(-3) + (-6)(3) = (-6)[(-3) + 3]$

4 Mark's work to simplify $(-3)(-5)(-2)$ is shown. Explain his error and show how to find the correct product.

$(-3)(-5)(-2) = (-15)(-2) = 30$

Adding and Subtracting Positive and Negative Fractions and Decimals

➤ **Estimate each problem to check if the student's answer is reasonable. If not, cross out the answer and write the correct answer. Show your work.**

Problems	Student Answers
1 $1.3 - (-2.5)$	~~-1.2~~ 3.8 Possible estimate: $1 - (-3) = 1 + 3 = 4$ $1.3 - (-2.5) = 1.3 + 2.5 = 3.8$
2 $-3\frac{1}{6} + 6\frac{2}{3}$	$-3\frac{1}{2}$
3 $-4.2 - (-2.9)$	-1.3
4 $3\frac{1}{5} - 2\frac{1}{2} + 2\frac{3}{5}$	$-3\frac{1}{3}$

Adding and Subtracting Positive and Negative Fractions and Decimals *continued*

Problems	Student Answers
5 $5.9 - 7.3 - 10.2$	11.6
6 $-5\frac{5}{6} - \left(-2\frac{1}{3}\right) + 5\frac{1}{6}$	$1\frac{2}{3}$
7 $11.5 - 5.4 - 4.7$	-1.4
8 $-11\frac{1}{8} - 12\frac{1}{4} - \left(-21\frac{1}{2}\right)$	$2\frac{1}{8}$

9 How does estimating an addition or subtraction problem help you know if an answer is reasonable?

Multiplying Negative Rational Numbers

➤ **Find the product of the rational numbers. The answers are mixed up at the bottom of the page. Cross out the answers as you complete the problems.**

1. $2 \times -\frac{7}{4}$ _____
2. $-\frac{1}{3} \times -\frac{6}{5}$ _____
3. $\frac{2}{5} \times -\frac{3}{4}$ _____
4. $-2\frac{1}{3} \times \frac{5}{4}$ _____
5. $-\frac{3}{7} \times -1\frac{2}{3}$ _____
6. $-3\frac{5}{7} \times -2\frac{1}{2}$ _____
7. $0.75 \times -\frac{4}{3}$ _____
8. $-0.2 \times -\frac{2}{5}$ _____
9. $-0.35 \times -1\frac{3}{7}$ _____
10. $2.5 \times -3\frac{4}{5}$ _____
11. 0.2×-0.45 _____
12. -0.25×-1.4 _____
13. -2.3×6.8 _____
14. $-3.9 \times 5\frac{5}{9}$ _____
15. $-4.2 \times -6\frac{2}{7}$ _____

Answers

$-21\frac{2}{3}$	-15.64	$-9\frac{1}{2}$	$-3\frac{1}{2}$	$-2\frac{11}{12}$
-1	$-\frac{3}{10}$	-0.09	$\frac{2}{25}$	0.35
$\frac{2}{5}$	$\frac{1}{2}$	$\frac{5}{7}$	$9\frac{2}{7}$	$26\frac{2}{5}$

Dividing Negative Rational Numbers

➤ **Find each quotient.**

1. $-5 \div \frac{5}{7}$

2. $-\frac{8}{9} \div \frac{2}{3}$

3. $\frac{3}{10} \div -\frac{6}{7}$

4. $-2\frac{3}{4} \div 11$

5. $-4\frac{2}{7} \div -\frac{15}{16}$

6. $-1\frac{4}{7} \div -3\frac{2}{3}$

7. $-8 \div 6.4$

8. $-\frac{3}{2} \div 0.5$

9. $-3\frac{1}{3} \div 1.2$

10. $9.28 \div -3.2$

11. $0.056 \div -0.004$

12. $-0.28 \div 0.07$

13. Explain the steps you used to solve problem 11.

Writing Rational Numbers as Repeating Decimals

➤ **Write each number as a repeating decimal.**

1. $\frac{1}{9}$

2. $-\frac{2}{11}$

3. $\frac{7}{11}$

4. $\frac{1}{3}$

5. $2\frac{4}{9}$

6. $-\frac{13}{6}$

7. $-1\frac{5}{6}$

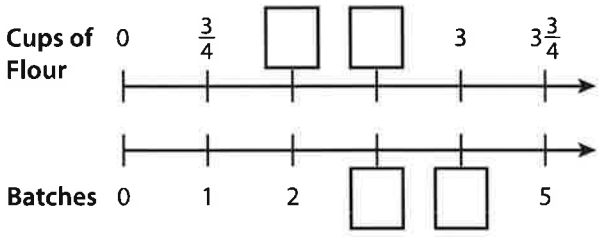
8. $\frac{13}{99}$

9. When the denominator of a proper fraction is 99, what do you notice about the repeating digit(s) in its decimal form?

Understanding Proportional Relationships

➤ **Read and solve the problems. Show your work.**

1. Josie is making pizza dough. Complete the double number line by filling in the missing values. Then write an equation that models the relationship between the total cups of flour, c, and number of batches, n. Show your work.



2. Lilli bought each of her friends a pair of colorful socks that cost $5.50. Complete the table to show how much Lilli paid to buy different numbers of socks. Then write an equation that shows the total cost, c, for p pairs of socks.

Cost		$11.00			
Pairs of socks	1	2	3		

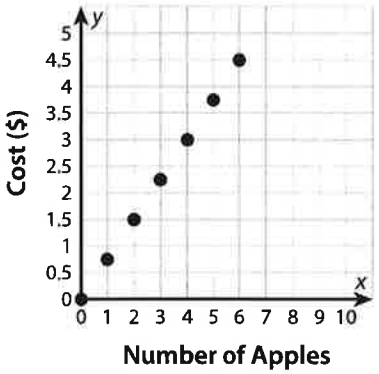
3. Explain how using a table is similar to using a double number line and how it is different.

4. Mrs. Lopez types at a constant rate. The constant of proportionality for the relationship between the number of words she types, w, and the number of minutes she types, m, is 38. Write an equation to show this relationship.

Interpreting Graphs of Proportional Relationships

➤ **The graph shows the cost of apples at a local market. Use the graph to answer problems 1–3.**

1. What is the cost of 1 apple and of 3 apples? How do you know?

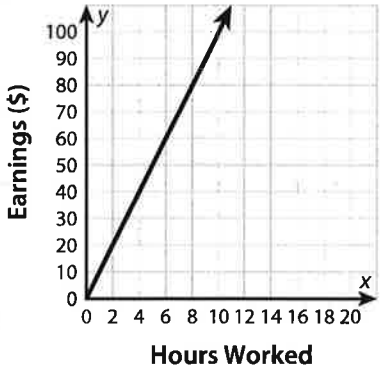


2. What does the point (0, 0) represent in this context?

3. What does the point (2, 1.5) represent in this context?

➤ **The graph shows Manuela's earnings for the number of hours she spends tutoring. Use the graph to answer problems 4 and 5.**

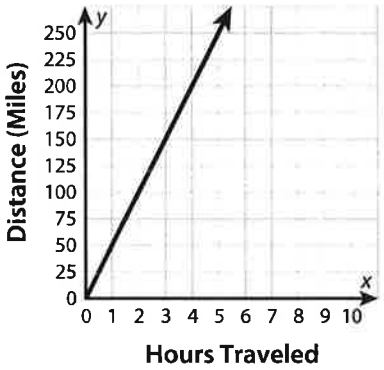
4. How much does Manuela earn for each hour of tutoring? Explain.



5. Write an equation that shows the relationship between Manuela's earnings, y, and hours, x.

Interpreting Graphs of Proportional Relationships *continued*

➤ **The graph shows the distance Jason's family traveled on a recent road trip. Use the graph to answer problems 6–8.**

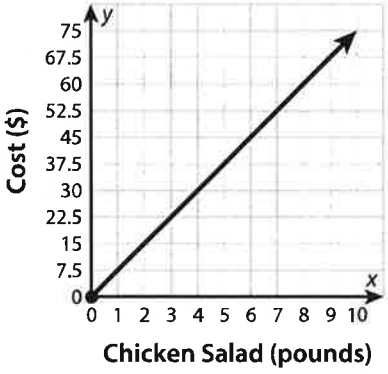


6 What is the constant of proportionality? Explain how you know.

7 Identify and interpret one other point on the graph.

8 Write an equation that models the distance, d, traveled in t hours.

➤ **The graph shows the cost per pound of chicken salad. Use the graph to answer problems 9 and 10.**



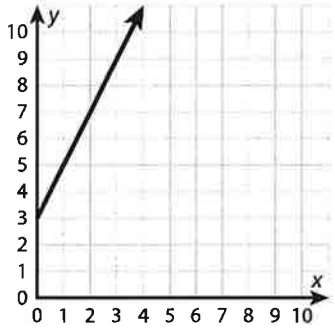
9 Randy claims that he can purchase 3.5 pounds of chicken salad for $23.50. Is he correct? Explain.

10 Explain how you can determine how much chicken salad may be purchased for $52.50.

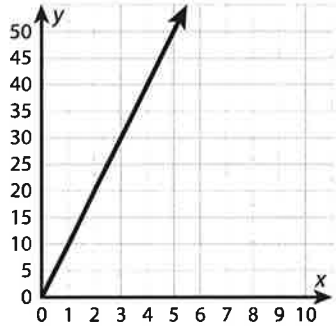
Recognizing Graphs of Proportional Relationships

➤ **Circle all the problems with graphs that do NOT represent a proportional relationship. For the problems that are circled, explain why the graphs do not represent a proportional relationship.**

1



2



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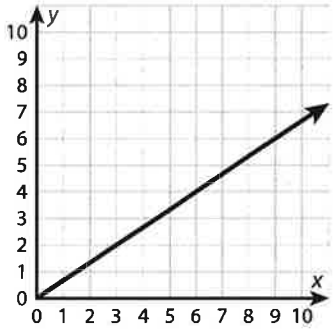

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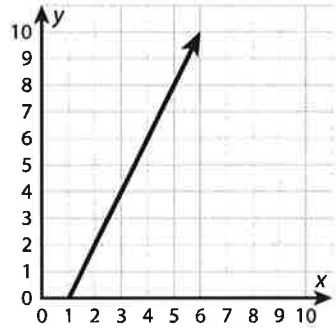

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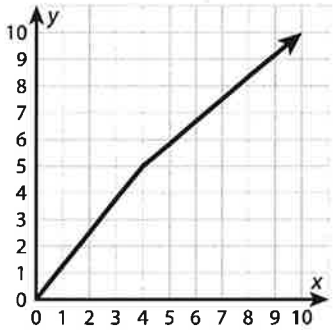

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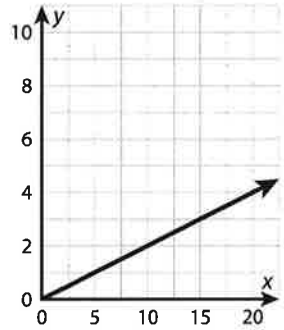
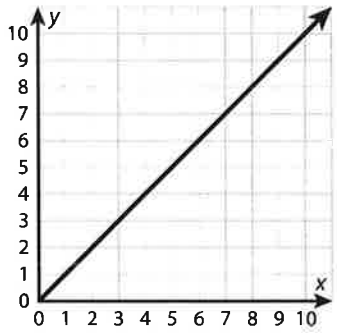
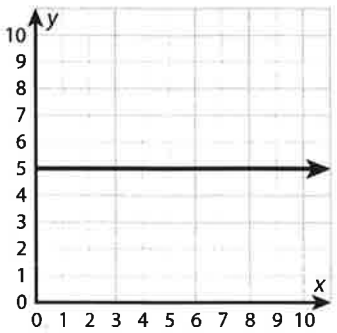
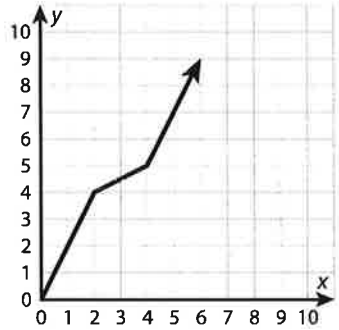
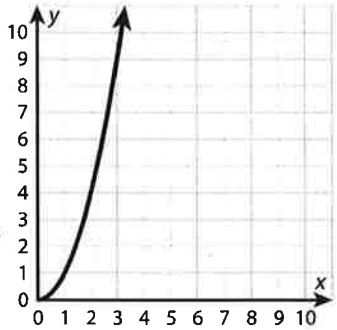


Recognizing Graphs of Proportional Relationships *continued*

7 

8 

9 

10 

11 Without analyzing specific points on a graph, explain how you know whether a graph shows a proportional relationship.

Solving Multi-Step Ratio Problems

➤ **Solve each problem.**

1. At The Green House of Salad, you get a $1 coupon for every 3 salads you buy. What is the least number of salads you could buy to get $10 in coupons?

2. Kim orders catering from Midtown Diner for $35. She spends $5 on a large order of potato salad and the rest on turkey sandwiches. Each sandwich is $2.50. How many sandwiches does Kim buy?

3. Molly and Liza are exercising. Molly does 10 push-ups at the same time as Liza does 15 push-ups. When Molly does 40 push-ups, how many push-ups does Liza do?

4. A shark swims at a speed of 25 miles per hour. The shark rests after 40 miles. How long, in minutes, does the shark swim before resting?

5. Ali and Janet are selling gifts at a local craft show. For every bar of soap that Ali sells, she earns $5. For every mug that Janet sells, she earns twice as much as Ali. Ali sells 5 bars of soap, and Janet sells 7 mugs. How much money did they make altogether?

6. Ted is making trail mix for a party. He mixes $1\frac{1}{2}$ cups of nuts, $\frac{1}{4}$ cup of raisins, and $\frac{1}{4}$ cup of pretzels. How many cups of pretzels does Ted need to make 15 cups of trail mix?

7. The ratio of chaperones to students on a field trip is 2 : 7. There are 14 chaperones on the field trip. In all, how many chaperones and students are there?

8. Dayren is driving to visit family. She drives at an average of 65 miles per hour. She drives 227.5 miles before lunch and then 97.5 miles after lunch. How many hours did she spend driving?

Solving Problems Involving Multiple Percents

➤ **Solve each problem.**

1. A chair's regular price is $349. It is on clearance for 30% off, and a customer uses a 15% off coupon after that. What is the final cost of the chair before sales tax?

2. A calculator is listed for $110 and is on clearance for 35% off. Sales tax is 7%. What is the cost of the calculator?

3. Cara started working for $9 per hour. She earns a 4% raise every year. What is her hourly wage after three years?

4. A factory manufactures a metal piece in 32 minutes. New technology allowed the factory to cut that time by 8%. Then another improvement cut the time by 5%. How long does it take to manufacture the piece now? Round your answer to the nearest minute.

5. An apartment costs $875 per month to rent. The owner raises the price by 20% and then gives a discount of 8% to renters who sign an 18-month lease. How much less do renters who sign an 18-month lease pay per month to rent the apartment?

Solving Problems Involving Multiple Percents *continued*

6 Damon buys lumber worth $562. He gets a 20% contractor's discount. The sales tax is 6%. His credit card gives him 2% off. How much does he pay?

7 Cindy is shopping for a television. The original price is $612. Store A has the television on clearance for 30% off. Store B has it on clearance for 25% off, and Cindy has a 10% off coupon to use at Store B. At which store will she pay less? How much less?

8 John goes to a restaurant and has a bill of $32.57. He uses a 10% off coupon on the cost of the meal. The tax is 8%. He leaves a tip of 18% on the amount before the coupon or tax is applied. How much does he spend?

9 Explain which situation will give you the best price: a discount of 15% and then 10% off that amount, a discount of 10% and then 15% off that amount, or a discount of 25%.

Solving Problems Involving Percent Change

➤ **Find the percent change and tell whether it is a percent increase or a percent decrease.**

1. Original amount: 20
   End amount: 15

2. Original amount: 30
   End amount: 45

3. Original amount: 625
   End amount: 550

4. Original amount: 320
   End amount: 112

5. Original amount: 165
   End amount: 222.75

6. Original amount: 326
   End amount: 423.80

7. Original amount: 27
   End amount: 38.61

8. Original amount: 60
   End amount: 70.02

9. How do you know when a situation involves a percent increase or a percent decrease?

Solving Problems Involving Percent Error

➤ **Solve each problem. Round to the nearest hundredth of a percent if needed.**

1. Mrs. Rowan allotted 30 minutes at the beginning of class for her students to complete an exam. The last student took 42 minutes to complete the exam. What is Mrs. Rowan's percent error?

2. Harper needs to mail an envelope. She weighs it at home as 10.4 ounces. When she gets to the post office, the clerk weighs it at 9.6 ounces. What is the percent error in the weight of the envelope?

3. An airline ticket states that the flight takes 2 hours and 45 minutes. The flight time is actually 2 hours and 54 minutes. What is the percent error in the flight time?

4. Luna buys a shirt that costs $15.65. She gives the cashier $20 and receives $3.25 in change. What is the percent error in the amount of change she was given?

5. Judy thinks there will be 325 people at the county fair on Friday, while Atticus thinks there will be 600 people. On Friday, 452 people attend the fair. Who is closer in their estimate? What is the difference between the percent errors?

6. Sussex County received 43 inches of rainfall this year. The percent error in the local meteorologist's rainfall prediction was about 18.02%. What are two possible values for the meteorologist's prediction?

Expanding Expressions

➤ **Expand each expression and combine like terms if possible.**

1. $4(x - 2)$

2. $-3(x + 7)$

3. $-4(-x - 8)$

4. $\frac{1}{3}(x - 9)$

5. $-\frac{1}{4}(x + 16)$

6. $-\frac{1}{5}(-x - 35)$

7. $\frac{2}{3}(x + 18 - 2x)$

8. $\frac{3}{4}(16x - 27 - 1)$

9. $-12\left(\frac{5}{6}x - 5\right) + 2x$

➤ **Determine which expressions, if any, are equivalent. Show your work.**

10. $4(x - 3)$

$6x - 2(x - 3)$

$x + 3(x - 2) - 6$

Expanding Expressions *continued*

11 $\frac{1}{3}(9x + 16 + 2) + 2x$ $7x + 14 - 2(x + 4)$ $x - 3 + 7(x + 3) - 3x - 12$

12 Use two different methods to expand $\frac{1}{4}(x + 2x + 16 - 8)$.

Factoring Expressions

➤ **Factor each expression.**

1. $8a + 16$

2. $12x - 20$

3. $-6a + 18$

4. $-14w - 21$

5. $8a - 12b + 28$

6. $-6x + 15y - 24$

7. $2a + 3 + 7a$

8. $-2x - 8x + 20$

9. $5y + 10 - 25y$

10. Simplify $(4x + 7) - (-3x - 9) + 9x - 28$. Then rewrite in factored form, if possible. Show your work.

Factoring Expressions *continued*

11 Determine which of the following expressions are equivalent. Show your work.

- $\frac{1}{6}(x - 3)$
- $\frac{1}{4}x - \frac{3}{5} - \frac{1}{12}x + \frac{1}{10}$
- $\frac{1}{18}x + \frac{1}{9}x - \frac{1}{2}$

12 Explain a different method you could use to solve problem 11.

Understanding Representing a Situation with Different Expressions

➤ **Complete the problems by rewriting algebraic expressions.**

1. Goby fish and shrimp naturally live close together. A pet store is selling bags of goby fish and shrimp to aquarium hobbyists. Each goby fish costs $15, and each shrimp costs $10. Each bag has an equal number of goby fish and shrimp.

   a. The pet store models the cost per bag with the expression $x(15 + 10)$. Explain what the expression represents.

   b. What other expression can you use to model the cost? Explain what the expression represents.

2. Ms. Ghandi runs 1 mile each morning and 1 mile each evening. She also does 10 push-ups each morning and each evening.

   a. Ms. Ghandi writes the two expressions $2(m + 10p)$ and $2m + 20p$. Explain how each expression represents how much she exercises.

   b. Ms. Ghandi wants to determine how much she will exercise this week. Write an expression to model this situation. Explain your expression.

3. Write two expressions for the perimeter of a square. Explain what information is in one of your expressions that is not in the other.

Writing and Solving Equations with Two or More Addends

➤ **Solve each equation. The answers are mixed up at the bottom of the page. Cross out the answers as you complete the problems.**

1. $8x + 15 = 63$

2. $9x - 13 = 23$

3. $135 = 2x + 25$

4. $33 = 32x - 31$

5. $12x - 16 = 68$

6. $7x + 115 = 136$

7. $82 = 4x + 14$

8. $2x - 56 = 34$

9. $3x - 4\frac{1}{2} = -19\frac{1}{2}$

10. $10 = -\frac{1}{4}x + 12$

11. $6x + 4.59 = 11.19$

12. $25.68 = 2x - 6.32$

Answers

$x = 1.1$	$x = 45$	$x = -5$	$x = 6$
$x = 7$	$x = 16$	$x = 4$	$x = 55$
$x = 17$	$x = 8$	$x = 2$	$x = 3$

Writing and Solving Inequalities

➤ **Write and solve an inequality to answer each question.**

1. Tetsuo has 50 arcade tokens. Each arcade game at RetroRama costs 4 tokens. How many games can Tetsuo play?

2. Kimberly has $120 to spend at the bookstore. Kimberly buys a hardcover book for $36, as well as some gift cards for her family and friends. Each gift card is $15. How many gift cards can Kimberly buy?

3. Kwame has a budget of $720 for his college class. He buys a laptop for $330 and wants to use the rest to buy computer programs. Each program costs $60. How many programs can Kwame purchase?

4. A farmer ties 4 bags on his mule. If the mule can carry up to 200 lb and each bag weighs 30 lb, how many more bags can the mule carry?

Writing and Solving Inequalities *continued*

5 Helga signs up to coach hockey. She wants to make at least $775 during the season. She gets $200 at the start of the season and $50 for each practice session she has. How many practice sessions does Helga need to have this season?

6 Logan has a budget of $400 to have family pictures taken. There is a sitting fee of $38. Prints cost $25 per page. How many pages of prints can Logan order?

7 At TopLine's 50th anniversary celebration, managers and assistants earn custom-engraved plaques in recognition of their outstanding performance. TopLine purchased a total of 81 plaques for the event. The company gives 25 plaques to the managers and at least 2 plaques to each assistant. What is the maximum number of assistants at the event?

8 A cartoonist has 150 pieces of original artwork to give to his publishers and some fans who won his online contest. He plans to send 30 drawings to his publishers. He is sending at least 3 pieces of artwork to each contest winner. How many contest winners could there be?

Certificate of Completion

This Award Is Presented to

_____

for completing the

Summer Learning Packet

_____ _____

Signature Date

Grade 7

Learning Packet Answer Key

Grade 7 Reading Activities in Section 1

Lesson	Resource	Instructions	Answer Key	Page(s)
1	Grade 7 Ready Language Handbook, Lesson 1 	• Read the Introduction. • Complete Guided Practice. • Complete Independent Practice.	**Guided Practice:** 1. C, with D written above 2. P 3. C 4. P **Independent Practice:** 1. D, 2. A, 3. A, 4. C, 5. B	
2	Grade 7 Ready Language Handbook, Lesson 4 	• Read the Introduction. • Complete Guided Practice. • Complete Independent Practice.	**Guided Practice:** 1. simple 2. compound: yet 3. simple 4. compound: so 5. simple **Independent Practice:** 1. D, 2. C, 3. B, 4. D, 5. A	
3	Grade 7 Ready Reading Lesson 1 	• Read the Introduction • Complete Modeled and Guided Instruction: "Deep–Sea Treasure Hunters."	**Modeled Instruction**: Central Idea: ...gather important information from sunken treasures Supporting Detail: Responses will vary. **Guided Instruction:** Question: C Show Your Thinking: Responses will vary.	

Grade 7 Reading Activities in Section 1 (Cont.)

Lesson	Resource	Instructions	Answer Key	Page(s)
4	Grade 7 Ready Reading Lesson 1 	• Complete Guided Practice "Commander Suni Williams."	**Guided Practice:** 1. A 2. C 3. Responses will vary.	
5	Grade 7 Ready Reading Lesson 1 	• Complete Independent Practice: "Martha Graham: Modern Dance Innovator."	**Independent Practice:** 1. B 2. C 3. B 4. Responses will vary.	
6	Grade 7 Ready Assessment 2 	• Read the passage "The Aqua-Lung—Bringing Ocean Exploration to New Depths." • Answer the questions that follow the passage.	1A. A 1B. C 2. D, G 3. A 4. D 5. Responses will vary.	

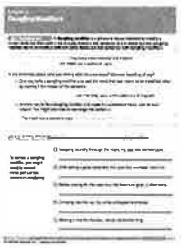
Grade 7 Reading Activities in Section 1 (Cont.)

Lesson	Resource	Instructions	Answer Key	Page(s)
7	Grade 7 Ready Assessment 3 	• Read the passage "Did Franklin Really Collect Electric Fire from the Sky?" • Answer the questions that follow the passage.	12A. B 12. B 13. A 14. C 15. B, D 16A. Students should place an X next to the second claim, "Records of the lightning experiment are not reliable." 16B. Responses will vary.	
8	Grade 7 Ready Language Handbook, Lesson 11 	• Read the Introduction. • Complete Guided Practice. • Complete Independent Practice.	**Guided Practice:** Responses will vary. Sample answers: 1. suffrage: or the right to vote (restatement) 2. prominent: For instance, the famous reformer Frederick Douglass (example) 3. convention: Many small meetings took place, but (contrast) 4. persistence: Thanks to . . . women won the right to vote more than seventy years later. (cause and effect) **Independent Practice**: 1. A, 2. C, 3. B, 4. B	

Grade 7 Reading Activities in Section 1 (Cont.)

Lesson	Resource	Instructions	Answer Key	Page(s)
9	Tools For Instruction 	• **Parent/Guardian**: Read the instructions and guide the student through the activity. Use this with a text the student read in a previous lesson.	Responses will vary.	

Grade 7 Reading Activities in Section 2

Lesson	Resource	Instructions	Answer Key	Page(s)
1	Grade 7 Ready Language Handbook, Lesson 7 	• Read the Introduction. • Complete Guided Practice. • Complete Independent Practice.	**Guided Practice:** Responses may vary. Sample answers: 1. I baked blueberry muffins in the oven and scrambled some eggs. 2. While he ate, my cousin Rob told us where he and Josh had camped. 3. Rob, who is in college, had taken my nine–year–old brother camping. 4. Rob had photos on his phone of the lovely lake near their campsite. 5. On the fridge, we put a drawing that Josh had made of the lake. **Independent Practice:** 1. A, 2. B, 3. D, 4. A	
2	Grade 7 Ready Language Handbook, Lesson 8 	• Read the Introduction. • Complete Guided Practice. • Complete Independent Practice.	**Guided Practice:** Responses will vary. Sample answers: 1. Sleeping soundly through the night, I was comfortable in my bed. 2. After I ate a good breakfast, the cave tour sounded more fun. 3. Before we left for the cave tour, we got directions from the brochure. 4. Climbing into the car, I dropped my camera and broke it. 5. As we waited in line for the tour, clouds started to form. **Independent Practice:** 1. D, 2. A, 3. B, 4. D	

Grade 7 Reading Activities in Section 2 (Cont.)

Lesson	Resource	Instructions	Answer Key	Page(s)
3	Grade 7 Ready Reading, Lesson 3, Parts 1, 2, and 3 	• Read the Introduction. • Complete Modeled and Guided Instruction: "The Flu Game."	**Introduction:** Text Evidence: happy, smiling; "I love this sport." **Modeled Instruction:** Text Evidence: Jordan suited up and appeared on the court three hours before the start of Game 5. Inference: Is extremely important Open Response: Responses will vary **Guided Instruction:** Question: A Show Your Thinking: Responses will vary.	
4	Grade 7 Ready Reading Lesson 3, Part 4 	• Complete Guided Practice "Race to Reach the South Pole: Scott vs. Amundsen."	**Guided Practice**: 1. B 2. A 3. Responses will vary.	
5	Grade 7 Ready Reading Lesson 3, Part 5 	• Complete Independent Practice: from "The President's Speech to Students."	**Independent Practice**: 1. C 2. D 3. C 4. Responses will vary.	

Grade 7 Reading Activities in Section 2 (Cont.)

Lesson	Resource	Instructions	Answer Key	Page(s)
6	Grade 7 Ready Assessment Practice 3 	• Read the passage "The Middle of Nowhere." • Answer the questions that follow the passage.	22A. C 22B. B 23. B, D 24. D 25. B 26. Responses will vary.	
7	Tools for Instruction 	• **Parent/Guardian:** Read the instructions and guide the student through the activity. Use this with a text the student read in a previous lesson.	Responses will vary.	

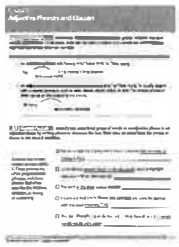
Grade 7 Reading Activities in Section 2 (Cont.)

Lesson	Resource	Instructions	Answer Key	Page(s)
8	**Grade 7 Ready Language Handbook,** Lesson 12 	• Read the Introduction. • Complete Guided Practice. • Complete Independent Practice.	**Guided Practice:** Responses will vary. Sample answers: belligerent: root *belli* means "war"; suffix *–ent* means "inclined to"; *belligerent* means "aggressive" conscious: prefix *con–* means "with"; root *sci* means "knowledge"; suffix –ious means "characterized by"; *conscious* means "aware" distract: prefix *dis–* means "do the opposite"; root *tract* means "draw, pull"; *distract* means "to change the focus of attention" intractable: root *tract* means "draw, pull"; suffix *–able* means "capable of, tending"; *intractable* means "hard to control" dehydrated: prefix *de–* means "do the opposite"; root *hydr* means "water"; *dehydrated* means "having lost fluid" reform: prefix *re–* means "again, anew"; root *form* means "shape"; *reform* means "to change for the better" inflexible: root *flex* means "bend"; suffix *–ible* means "capable of"; *inflexible* means "incapable of change" **Independent Practice:** 1. B, 2. B, 3. C, 4. D	

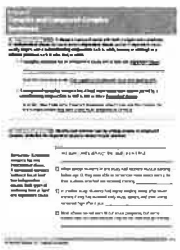
Grade 7 Reading Activities in Section 2 (Cont.)

Lesson	Resource	Instructions	Answer Key	Page(s)
9	Grade 7 Ready Reading, Unit 1 Interim Assessment 	• Complete Unit 1 Interim Assessment: "The Bone Wars."	1A. C 1B. D 2. A 3. B 4. C 5. D 6. B 7. D 8. Responses will vary. 9. Responses will vary. 10. Responses will vary.	

Grade 7 Writing and Language Activities

Entry	Writing Prompt	Resource	Answer Key	Page
1	Part 1 	Part 2 Language Handbook, Grade 7 Lesson 1 Phrases and Clauses 	Guided Practice: 1. C, with D written above 2. P 3. C 4. P Independent Practice: 1. D 2. A 3. A 4. C	
2	Part 1 	Part 2 Language Handbook, Grade 7 Lesson 2 Adjective Phrases and Clauses 	Guided Practice: 1. Clause; arrow points to *mistake* 2. Clause; arrow points to *Uncle Nestor* 3. Phrase; arrow points to *clerk* 4. Phrase; arrow points to *word* 5. Clause; arrow points to *flag* Independent Practice: 1. B 2. C 3. B 4. A 5. D	

Grade 7 Writing and Language Activities (Cont.)

Entry	Writing Prompt	Resource	Answer Key	Page
3	Part 1 	Part 2 Grade 7 Lesson 3 Adverb Phrases and Clauses 	Guided Practice: 1. touch: how 2. moves: when 3. dives: where 4. scores: why 5. over: when Independent Practice: 1. B 2. C 3. D 4. C	
4	Part 1 	Part 2 Language Handbook, Grade 7 Lesson 5 Complex and Compound-Complex Sentences 	Guided Practice: 1. Complex: although the results are not final 2. Complex: when college students in one study had received musical training before age 12; who had not received training 3. Compound-complex: if they had received daily music lessons 4. Compound-complex: because they do not have enough money Independent Practice: 1. D 2. C 3. D	

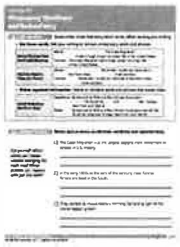
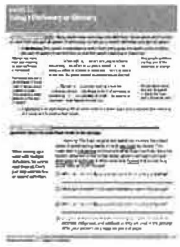
Grade 7 Writing and Language Activities (Cont.)

Entry	Writing Prompt	Resource	Answer Key	Page
5	Part 1 	Part 2 Language Handbook, Grade 7 Lesson 6 Using Different Kinds of Sentences 	Guided Practice: 1. A knight's training began early in life; it ended in the knight's teenage years: compound 2. Jousts kept knights in great condition for real battles: simple 3. they often rooted for a favorite knight: complex 4. the matches were a popular part of life; townspeople regularly gathered to watch these events: compound-complex 5. Jousting competitions were usually part of a larger tournament: complex Independent Practice: 1. C 2. A 3. B	

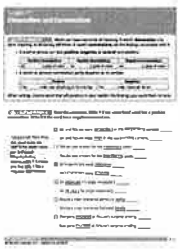
Grade 7 Writing and Language Activities (Cont.)

Entry	Writing Prompt	Resource	Answer Key	Page
6	Part 1 	Part 2 Language Handbook, Grade 7 Lesson 9 Commas with Coordinate Adjectives 	Guided Practice: 1. The Civil War proved to be a remarkable, important moment in the history of photography. 2. Photographers had to carry their heavy, bulky, camera equipment with them as they traveled. 3. The picture showed young, tired, wounded soldiers surviving in difficult, wartime conditions. 4. The photographers inspired numerous, future, news journalists. 5. The many terrible dangers of war were depicted, but so were strong, courageous acts of leadership. Independent Practice: 1. A 2. B 3. D 4. C 5. B	

Grade 7 Writing and Language Activities (Cont.)

Entry	Writing Prompt	Resource	Answer Key	Page
7	Part 1 	Part 2 Language Handbook, Grade 7 Lesson 10 Eliminating Wordiness and Redundancy 	Guided Practice: Responses will vary. Sample answers: 1. The Great Migration was the largest movement of people in U.S. history. 2. In the early 1900s, most African Americans lived in the South. 3. They worked as sharecroppers, farming the land. Independent Practice: 1. D 2. A 3. C	
8	Part 1 	Part 2 Language Handbook, Grade 7 Lesson 13 Using a Dictionary or Glossary 	Guided Practice: 1. Definition 3, "to make an effort to achieve or complete" 2. Verb 3. Definition 5, "to believe or conclude" 4. Responses will vary. Sample answers: decimate: verb; to destroy a large part of something indigenous: adjective; originating in a place, native eradicate: verb; to get rid of Independent Practice: 1. C 2. A 3. B	

Grade 7 Writing and Language Activities (Cont.)

Entry	Writing Prompt	Resource	Answer Key	Page
9	Part 1 	Part 2 Language Handbook, Grade 7 Lesson 14 Using a Thesaurus 	Guided Practice: 1. distress, disturb, trouble, worry, disquiet 2. Definition 2, "to worry someone" 3. bit, chip, shred, sliver, segment 4. whole, total 5. bits Independent Practice: 1. B 2. A 3. B	
10	Part 1 	Part 2 Language Handbook, Grade 7 Lesson 17 Denotation and Connotation 	Guided Practice: 1. contenders: P rivals: N 2. mysterious: P bewildering: N 3. ridiculous: N amusing: P 4. displayed: P flaunted: N 5. rashly: N boldly: P 6. snickered: N chuckled: P Independent Practice: 1. A 2. C 3. C 4. A 5. D	

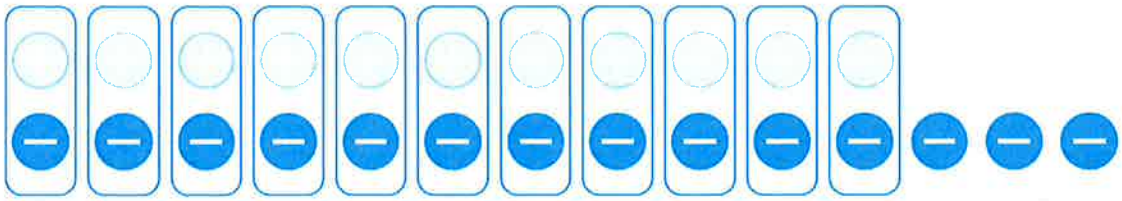
Understanding Addition with Negative Integers

1. Between the time Iko woke up and lunchtime, the temperature rose by 11°. Then by the time he went to bed, the temperature dropped by 14 °.

Write an addition expression for the temperature relative to when Iko woke up.

11 + (−14)

Draw a model using integer chips and circle the zero pairs.



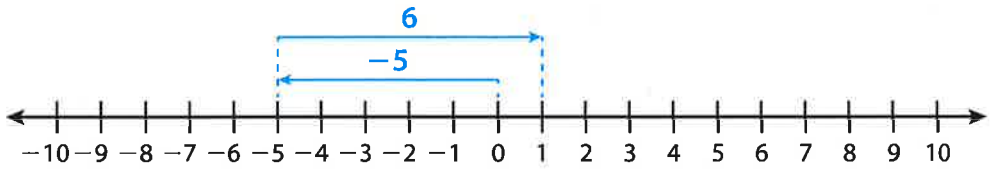
What is the value of the remaining integer chips after the zero pairs are removed?

−3

What is the net change in the temperature relative to when Iko woke up?

−3°, or a loss of 3°

2. Complete the number line model to find (−5) + 6.



(−5) + 6 = 1

How would the number line model be different if you wanted to find (−5) + (−6)?

Possible answer: I would start the same way, by drawing an arrow from 0 to −5. Then I would draw an arrow from −5 to −11 to show adding −6.

Understanding Addition with Negative Integers *continued*

➤ **For problems 3–5, consider the sum 4 + (−8).**

3. Explain how you can use a number line to find the sum.

   Possible answer: I can draw a number line with the first arrow pointing left from 0 to 4, then draw an arrow 8 units to the left from 4 to −4. The arrow ends at −4, so the sum is −4.

4. Explain how you can use chips to determine the sum.

   Possible answer: I can use 4 positive chips and 8 negative chips. I can group zero pairs, then count the remaining chips. There are 4 negative chips remaining, so the sum is −4.

5. Does it matter what order you add the numbers in the problem? Explain how chips and number lines support your answer.

   No; Possible answer: On the number line, I can draw an arrow from 0 to −8, then draw an arrow from −8 to −4. Using the chips, I could use 8 negative chips and then 4 positive chips. I will make the same number of zero pairs, and there will still be 4 negative chips remaining.

6. Write an addition expression that has a value of −8.

   Possible answer: 5 + (−13)

Understanding Subtraction with Negative Integers

1 Mary takes 9 grapes from Rohin and then decides to give 4 back.

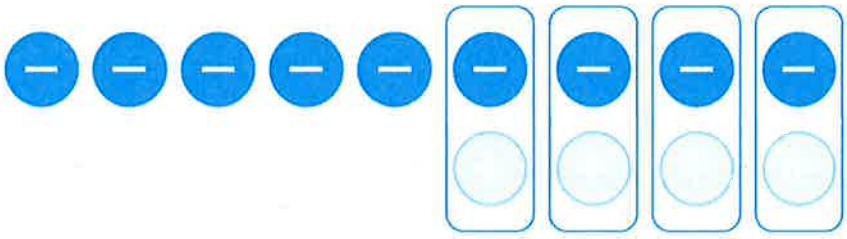
Write a subtraction problem to describe how many grapes Rohin has. $-9 - (-4)$

Draw a model for the subtraction problem using integer chips.

How many negative integer chips did you cross out? 4

Write the subtraction as addition. $-9 + 4$

Draw a model for the addition problem using integer chips.



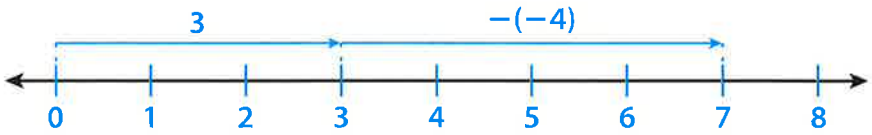
How do the two integer chip models show that $-9 - (-4)$ is the same as $-9 + 4$?

They both show that when you start with -9, you can take away -4 or add 4. In each model, you get rid of 4 negative integer chips and you have 5 negative integer chips left.

What is the change in the number of grapes Rohin has? -5

Understanding Subtraction with Negative Integers *continued*

2 Jin is 3 floors above ground level in a hotel. Leila is on a parking level of the hotel that is 4 floors below ground level. How many floors apart are they? Draw a number line model to show $3 - (-4)$.



What is $3 - (-4)$? 7

What is the meaning of this answer in the context of the problem?

Jin and Leila are 7 floors apart.

Rewrite $3 - (-4)$ as an addition problem. $3 + 4 = 7$

3 The variables a and b represent positive numbers. When you find the difference $a - (-b)$, do you expect the result to be less than or greater than a? What if a is negative and b is positive? Explain.

Possible answer: Whether a is positive or negative, I can write $a - (-b)$ as $a + b$, so I am always adding a positive value to a. The difference will always be greater than a.

Understanding Multiplication with Negative Integers

➤ **Practice multiplying negative integers.**

1. Find each product. Then describe any patterns you notice.

$3 \cdot (-7) =$ −21

$2 \cdot (-7) =$ −14

$1 \cdot (-7) =$ −7

$0 \cdot (-7) =$ 0

$(-1) \cdot (-7) =$ 7

$(-2) \cdot (-7) =$ 14

$(-3) \cdot (-7) =$ 21

Possible answer: The product of a positive number and a negative number is always negative, and the product of two negative numbers is always positive.

2. Solve each problem. Explain how you determined the sign of the products.

$(-3)(9) =$ −27

$(-8)(-5) =$ 40

$(-5)(-6) =$ 30

$(-1)(2)(-6) =$ 12

$(-2)(-4)(-7) =$ −56

$(-3)(-4)(-3)(-1) =$ 36

Possible answer: The product of two negative numbers is positive. The product of a positive number and a negative number is negative. The product of three negative numbers is negative because the product of the first two factors is positive. That positive factor is then multiplied by a negative number, resulting in a negative product. The product of four negative numbers is positive because the product of each pair of negative factors is positive and then the product of two positive numbers is positive.

Understanding Multiplication with Negative Integers *continued*

3 Use the distributive property to show why the product $(-6)(-3)$ is positive. The first step is done for you.

$(-6)(-3) + (-6)(3) = (-6)[(-3) + 3]$

$(-6)(-3) + (-6)(3) = (-6)(0)$

$(-6)(-3) + (-6)(3) = 0$

$(-6)(-3) + (-18) = 0$

$(-6)(-3) = 18$

4 Mark's work to simplify $(-3)(-5)(-2)$ is shown. Explain his error and show how to find the correct product.

$(-3)(-5)(-2) = (-15)(-2) = 30$

Possible answer: The product of two negative numbers is positive, so $(-3)(-5) = 15$. The problem $(-3)(-5)(-2)$ can be rewritten as $(15)(-2)$ instead of $(-15)(-2)$. The product of a positive number and a negative number is negative, so $(15)(-2) = -30$.

Adding and Subtracting Positive and Negative Fractions and Decimals

➤ **Estimate each problem to check if the student's answer is reasonable. If not, cross out the answer and write the correct answer. Show your work.**

Problems	Student Answers
1 $1.3 - (-2.5)$	~~-1.2~~ Possible estimate: $1 - (-3) = 1 + 3 = 4$ 3.8 $1.3 - (-2.5) = 1.3 + 2.5 = 3.8$
2 $-3\frac{1}{6} + 6\frac{2}{3}$	~~$-3\frac{1}{2}$~~ Possible estimate: $-3 + 7 = 4$ $3\frac{1}{2}$ $-3\frac{1}{6} + 6\frac{2}{3} = 3\frac{1}{2}$
3 $-4.2 - (-2.9)$	-1.3 Possible estimate: $-4 - (-3) = -4 + 3 = -1$
4 $3\frac{1}{5} - 2\frac{1}{2} + 2\frac{3}{5}$	~~$-3\frac{1}{3}$~~ Possible estimate: $3 - 3 + 3 = 0 + 3 = 3$ $3\frac{3}{10}$ $3\frac{1}{5} - 2\frac{1}{2} + 2\frac{3}{5} = 3\frac{3}{10}$

Adding and Subtracting Positive and Negative Fractions and Decimals *continued*

Problems	Student Answers
5 $5.9 - 7.3 - 10.2$	~~11.6~~ -11.6 Possible estimate: $6 - 7 - 10 = -1 - 10$ $= -11$ $5.9 - 7.3 - 10.2 = -11.6$
6 $-5\frac{5}{6} - \left(-2\frac{1}{3}\right) + 5\frac{1}{6}$	$1\frac{2}{3}$ Possible estimate: $-6 - (-2) + 4 = -6 + 2 + 5$ $= -4 + 5$ $= 1$
7 $11.5 - 5.4 - 4.7$	~~-1.4~~ 1.4 Possible estimate: $12 - 5 - 5 = 7 - 5$ $= 2$ $11.5 - 5.4 - 4.7 = 1.4$
8 $-11\frac{1}{8} - 12\frac{1}{4} - \left(-21\frac{1}{2}\right)$	~~$2\frac{1}{8}$~~ $-1\frac{7}{8}$ Possible estimate: $-11 - 12 - (-22) = -11 - 12 + 22$ $= -23 + 22$ $= -1$ $-11\frac{1}{8} - 12\frac{1}{4} - \left(-21\frac{1}{2}\right) = -1\frac{7}{8}$

9 How does estimating an addition or subtraction problem help you know if an answer is reasonable?

Possible answer: I can use the estimate to determine if the correct answer is positive or negative. I can also determine if the estimate and the given answer are close.

Multiplying Negative Rational Numbers

➤ **Find the product of the rational numbers. The answers are mixed up at the bottom of the page. Cross out the answers as you complete the problems.**

1. $2 \times -\frac{7}{4}$

   $-3\frac{1}{2}$

2. $-\frac{1}{3} \times -\frac{6}{5}$

   $\frac{2}{5}$

3. $\frac{2}{5} \times -\frac{3}{4}$

   $-\frac{3}{10}$

4. $-2\frac{1}{3} \times \frac{5}{4}$

   $-2\frac{11}{12}$

5. $-\frac{3}{7} \times -1\frac{2}{3}$

   $\frac{5}{7}$

6. $-3\frac{5}{7} \times -2\frac{1}{2}$

   $9\frac{2}{7}$

7. $0.75 \times -\frac{4}{3}$

   -1

8. $-0.2 \times -\frac{2}{5}$

   $\frac{2}{25}$ or 0.08

9. $-0.35 \times -1\frac{3}{7}$

   $\frac{1}{2}$ or 0.5

10. $2.5 \times -3\frac{4}{5}$

    $-9\frac{1}{2}$ or -9.5

11. 0.2×-0.45

    -0.09

12. -0.25×-1.4

    0.35

13. -2.3×6.8

    -15.64

14. $-3.9 \times 5\frac{5}{9}$

    $-21\frac{2}{3}$ or $21.\overline{6}$

15. $-4.2 \times -6\frac{2}{7}$

    $26\frac{2}{5}$ or 26.4

Answers

$-21\frac{2}{3}$	-15.64	$-9\frac{1}{2}$	$-3\frac{1}{2}$	$-2\frac{11}{12}$
-1	$-\frac{3}{10}$	-0.09	$\frac{2}{25}$	0.35
$\frac{2}{5}$	$\frac{1}{2}$	$\frac{5}{7}$	$9\frac{2}{7}$	$26\frac{2}{5}$

Dividing Negative Rational Numbers

➤ **Find each quotient.**

1. $-5 \div \frac{5}{7}$

   -7

2. $-\frac{8}{9} \div \frac{2}{3}$

   $-1\frac{1}{3}$

3. $\frac{3}{10} \div -\frac{6}{7}$

   $-\frac{7}{20}$

4. $-2\frac{3}{4} \div 11$

   $-\frac{1}{4}$

5. $-4\frac{2}{7} \div -\frac{15}{16}$

   $4\frac{4}{7}$

6. $-1\frac{4}{7} \div -3\frac{2}{3}$

   $\frac{3}{7}$

7. $-8 \div 6.4$

   -1.25

8. $-\frac{3}{2} \div 0.5$

   -3

9. $-3\frac{1}{3} \div 1.2$

   $-2\frac{7}{9}$

10. $9.28 \div -3.2$

    -2.9

11. $0.056 \div -0.004$

    -14

12. $-0.28 \div 0.07$

    -4

13. Explain the steps you used to solve problem 11.

    Possible explanation: I changed the expression to $56 \div -4$ by multiplying the dividend and the divisor by 1,000.

Writing Rational Numbers as Repeating Decimals

➤ **Write each number as a repeating decimal.**

1. $\frac{1}{9}$

$0.\overline{1}$

2. $-\frac{2}{11}$

$-0.\overline{18}$

3. $\frac{7}{11}$

$0.\overline{63}$

4. $\frac{1}{3}$

$0.\overline{3}$

5. $2\frac{4}{9}$

$2.\overline{4}$

6. $-\frac{13}{6}$

$-2.1\overline{6}$

7. $-1\frac{5}{6}$

$-1.8\overline{3}$

8. $\frac{13}{99}$

$0.\overline{13}$

9. When the denominator of a proper fraction is 99, what do you notice about the repeating digit(s) in its decimal form?

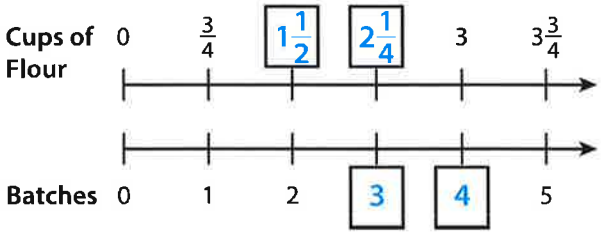
Possible answer: The numerator tells the repeating digits.

For example, $\frac{28}{99} = 0.\overline{28}$.

Understanding Proportional Relationships

➤ **Read and solve the problems. Show your work.**

1. Josie is making pizza dough. Complete the double number line by filling in the missing values. Then write an equation that models the relationship between the total cups of flour, c, and number of batches, n. Show your work.



$c = \frac{3}{4}n$

2. Lilli bought each of her friends a pair of colorful socks that cost $5.50. Complete the table to show how much Lilli paid to buy different numbers of socks. Then write an equation that shows the total cost, c, for p pairs of socks.

Cost	$5.50	$11.00	$16.50	$22.00	$27.50
Pairs of socks	1	2	3	4	5

$c = 5.5p$

3. Explain how using a table is similar to using a double number line and how it is different.

Possible answer:

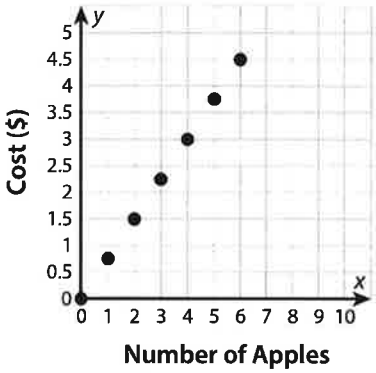
Double number lines and tables both show corresponding values in a proportional relationship. The ratios formed by corresponding values are always equivalent in both a table and a double number line. A double number line usually starts at 0 and increases incrementally. A table does not necessarily start at 0 and may not increase incrementally.

4. Mrs. Lopez types at a constant rate. The constant of proportionality for the relationship between the number of words she types, w, and the number of minutes she types, m, is 38. Write an equation to show this relationship.

$w = 38m$

Interpreting Graphs of Proportional Relationships

➤ **The graph shows the cost of apples at a local market. Use the graph to answer problems 1–3.**



1. What is the cost of 1 apple and of 3 apples? How do you know?

   Possible answer: One apple costs $0.75, and 3 apples cost $2.25. The points (1, 0.75) and (3, 2.25) are on the graph. The *x*-coordinate of 1 corresponds to the *y*-coordinate of 0.75, and the *x*-coordinate of 3 corresponds to the *y*-coordinate of 2.25.

2. What does the point (0, 0) represent in this context?

   Possible answer: (0, 0) means that 0 apples cost $0.00.

3. What does the point (2, 1.5) represent in this context?

   Possible answer: The cost of 2 apples is $1.50.

➤ **The graph shows Manuela's earnings for the number of hours she spends tutoring. Use the graph to answer problems 4 and 5.**

4. How much does Manuela earn for each hour of tutoring? Explain.

   Possible answer:

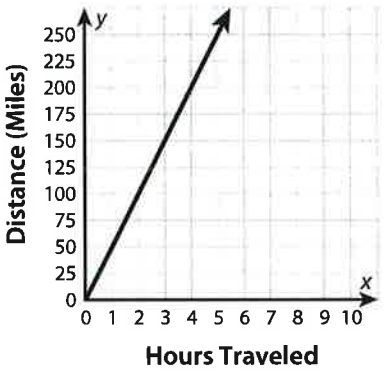
   $10 per hour; Possible explanation: The graph goes through the point (1, 10). The *y*-coordinate associated with the *x*-coordinate of 1 is the constant of proportionality.

5. Write an equation that shows the relationship between Manuela's earnings, *y*, and hours, *x*.

   $y = 10x$

Interpreting Graphs of Proportional Relationships *continued*

➤ **The graph shows the distance Jason's family traveled on a recent road trip. Use the graph to answer problems 6–8.**



6. What is the constant of proportionality? Explain how you know.

   50; Possible explanation: The point (1, 50) is on the graph. The *y*-coordinate associated with the *x*-coordinate of 1 is the constant of proportionality.

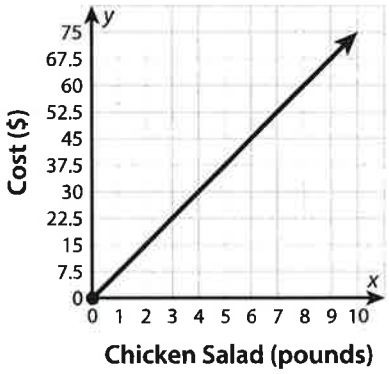
7. Identify and interpret one other point on the graph.

   Possible answer: The point (2, 100) means that Jason's family traveled 100 miles in 2 hours.

8. Write an equation that models the distance, d, traveled in t hours.

   $d = 50t$

➤ **The graph shows the cost per pound of chicken salad. Use the graph to answer problems 9 and 10.**



9. Randy claims that he can purchase 3.5 pounds of chicken salad for $23.50. Is he correct? Explain.

   No; Possible explanation: According to the graph, 3.5 corresponds to the point halfway between 22.5 and 30, and 23.5 is not halfway.

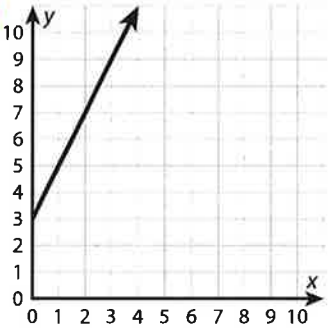
10. Explain how you can determine how much chicken salad may be purchased for $52.50.

    Possible answer: You can find the *x*-coordinate that corresponds with the *y*-value of 52.5 on the graph.

Recognizing Graphs of Proportional Relationships

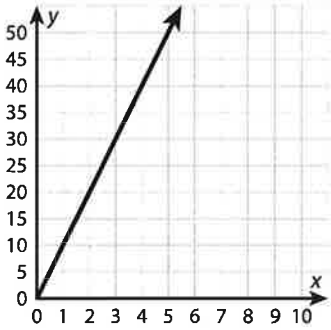
➤ **Circle all the problems with graphs that do NOT represent a proportional relationship. For the problems that are circled, explain why the graphs do not represent a proportional relationship.**

1



The graph does not go through the origin.

2



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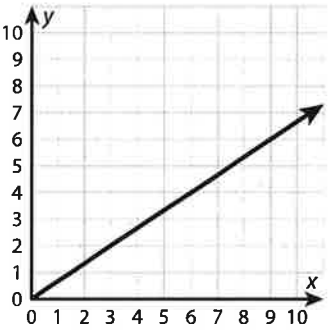

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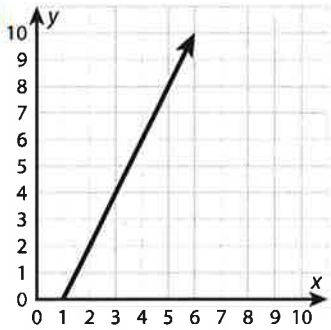
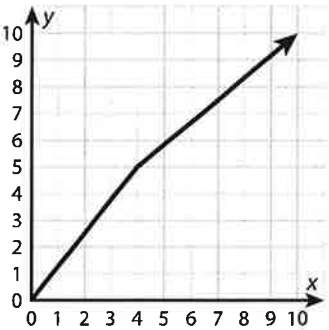


The graph does not go through the origin.

5



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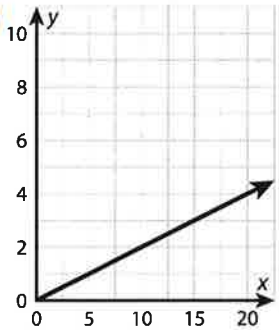
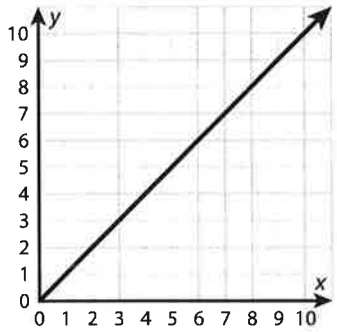


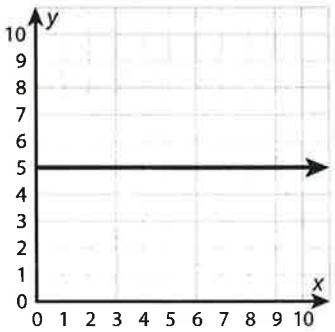
The x-values do not change as the y-values increase.

Recognizing Graphs of Proportional Relationships *continued*

7

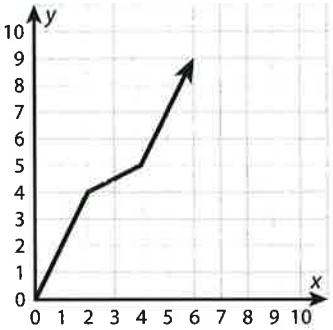


8



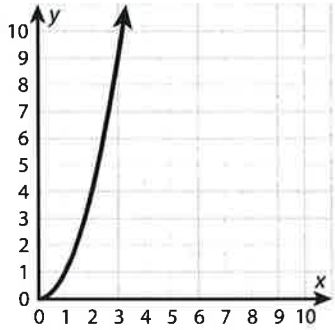
The *y*-values do not change as the *x*-values increase.

9



The graph is not a straight line.

10



The graph is not a straight line.

11 Without analyzing specific points on a graph, explain how you know whether a graph shows a proportional relationship.

Possible answer: The graph of a proportional relationship is a straight line that passes through the origin, with all points on the line representing equivalent ratios.

Solving Multi-Step Ratio Problems

➤ **Solve each problem.**

1. At The Green House of Salad, you get a $1 coupon for every 3 salads you buy. What is the least number of salads you could buy to get $10 in coupons?

30 salads

2. Kim orders catering from Midtown Diner for $35. She spends $5 on a large order of potato salad and the rest on turkey sandwiches. Each sandwich is $2.50. How many sandwiches does Kim buy?

12 sandwiches

3. Molly and Liza are exercising. Molly does 10 push-ups at the same time as Liza does 15 push-ups. When Molly does 40 push-ups, how many push-ups does Liza do?

60 push-ups

4. A shark swims at a speed of 25 miles per hour. The shark rests after 40 miles. How long, in minutes, does the shark swim before resting?

96 minutes

5. Ali and Janet are selling gifts at a local craft show. For every bar of soap that Ali sells, she earns $5. For every mug that Janet sells, she earns twice as much as Ali. Ali sells 5 bars of soap, and Janet sells 7 mugs. How much money did they make altogether?

$95

6. Ted is making trail mix for a party. He mixes $1\frac{1}{2}$ cups of nuts, $\frac{1}{4}$ cup of raisins, and $\frac{1}{4}$ cup of pretzels. How many cups of pretzels does Ted need to make 15 cups of trail mix?

$1\frac{7}{8}$ cups of pretzels

7. The ratio of chaperones to students on a field trip is 2 : 7. There are 14 chaperones on the field trip. In all, how many chaperones and students are there?

63 students and chaperones

8. Dayren is driving to visit family. She drives at an average of 65 miles per hour. She drives 227.5 miles before lunch and then 97.5 miles after lunch. How many hours did she spend driving?

5 hours

Solving Problems Involving Multiple Percents

➤ **Solve each problem.**

1. A chair's regular price is $349. It is on clearance for 30% off, and a customer uses a 15% off coupon after that. What is the final cost of the chair before sales tax?

   $207.66

2. A calculator is listed for $110 and is on clearance for 35% off. Sales tax is 7%. What is the cost of the calculator?

   $76.51

3. Cara started working for $9 per hour. She earns a 4% raise every year. What is her hourly wage after three years?

   $10.12 per hour

4. A factory manufactures a metal piece in 32 minutes. New technology allowed the factory to cut that time by 8%. Then another improvement cut the time by 5%. How long does it take to manufacture the piece now? Round your answer to the nearest minute.

   28 minutes

5. An apartment costs $875 per month to rent. The owner raises the price by 20% and then gives a discount of 8% to renters who sign an 18-month lease. How much less do renters who sign an 18-month lease pay per month to rent the apartment?

   $84 less

Solving Problems Involving Multiple Percents *continued*

6 Damon buys lumber worth $562. He gets a 20% contractor's discount. The sales tax is 6%. His credit card gives him 2% off. How much does he pay?

$467.04

7 Cindy is shopping for a television. The original price is $612. Store A has the television on clearance for 30% off. Store B has it on clearance for 25% off, and Cindy has a 10% off coupon to use at Store B. At which store will she pay less? How much less?

Store B; $15.30 less

8 John goes to a restaurant and has a bill of $32.57. He uses a 10% off coupon on the cost of the meal. The tax is 8%. He leaves a tip of 18% on the amount before the coupon or tax is applied. How much does he spend?

$37.52

9 Explain which situation will give you the best price: a discount of 15% and then 10% off that amount, a discount of 10% and then 15% off that amount, or a discount of 25%.

a discount of 25%; Possible explanation: Applying a 15% off discount and a 10% off discount in either order results in the same final amount because of the commutative property of multiplication. This final amount is more than when a 25% off discount is applied.

Solving Problems Involving Percent Change

➤ **Find the percent change and tell whether it is a percent increase or a percent decrease.**

1. Original amount: 20
   End amount: 15

   25% decrease

2. Original amount: 30
   End amount: 45

   50% increase

3. Original amount: 625
   End amount: 550

   12% decrease

4. Original amount: 320
   End amount: 112

   65% decrease

5. Original amount: 165
   End amount: 222.75

   35% increase

6. Original amount: 326
   End amount: 423.80

   30% increase

7. Original amount: 27
   End amount: 38.61

   43% increase

8. Original amount: 60
   End amount: 70.02

   16.7% increase

9. How do you know when a situation involves a percent increase or a percent decrease?

   Possible answer: When the end amount is greater than the original amount, there is a percent increase. When the end amount is less than the original amount, there is a percent decrease.

Solving Problems Involving Percent Error

➤ **Solve each problem. Round to the nearest hundredth of a percent if needed.**

1. Mrs. Rowan allotted 30 minutes at the beginning of class for her students to complete an exam. The last student took 42 minutes to complete the exam. What is Mrs. Rowan's percent error?

40%

2. Harper needs to mail an envelope. She weighs it at home as 10.4 ounces. When she gets to the post office, the clerk weighs it at 9.6 ounces. What is the percent error in the weight of the envelope?

7.69%

3. An airline ticket states that the flight takes 2 hours and 45 minutes. The flight time is actually 2 hours and 54 minutes. What is the percent error in the flight time?

5.45%

4. Luna buys a shirt that costs $15.65. She gives the cashier $20 and receives $3.25 in change. What is the percent error in the amount of change she was given?

25.29%

5. Judy thinks there will be 325 people at the county fair on Friday, while Atticus thinks there will be 600 people. On Friday, 452 people attend the fair. Who is closer in their estimate? What is the difference between the percent errors?

Judy is closer by about 4.64%.

6. Sussex County received 43 inches of rainfall this year. The percent error in the local meteorologist's rainfall prediction was about 18.02%. What are two possible values for the meteorologist's prediction?

35.25 inches, 50.75 inches

Expanding Expressions

➤ **Expand each expression and combine like terms if possible.**

1. $4(x - 2)$

   $4x - 8$

2. $-3(x + 7)$

   $-3x - 21$

3. $-4(-x - 8)$

   $4x + 32$

4. $\frac{1}{3}(x - 9)$

   $\frac{1}{3}x - 3$

5. $-\frac{1}{4}(x + 16)$

   $-\frac{1}{4}x - 4$

6. $-\frac{1}{5}(-x - 35)$

   $\frac{1}{5}x + 7$

7. $\frac{2}{3}(x + 18 - 2x)$

   $-\frac{2}{3}x + 12$

8. $\frac{3}{4}(16x - 27 - 1)$

   $12x - 21$

9. $-12\left(\frac{5}{6}x - 5\right) + 2x$

   $-8x + 60$

➤ **Determine which expressions, if any, are equivalent. Show your work.**

10. $4(x - 3)$ $\quad$ $6x - 2(x - 3)$ $\quad$ $x + 3(x - 2) - 6$

    $4(x - 3)$ $\quad$ $6x - 2(x - 3)$ $\quad$ $x + 3(x - 2) - 6$

    $4x - 12$ $\quad$ $6x - 2x + 6$ $\quad$ $x + 3x - 6 - 6$

    $4x + 6$ $\quad$ $4x - 12$

    $4(x - 3)$ and $x + 3(x - 2) - 6$ are equivalent expressions.

Expanding Expressions *continued*

11 $\frac{1}{3}(9x + 16 + 2) + 2x$

$\frac{1}{3}(9x + 16 + 2) + 2x$

$\frac{1}{3}(9x + 18) + 2x$

$3x + 6 + 2x$

$5x + 6$

All three expressions are equivalent.

$7x + 14 - 2(x + 4)$

$7x + 14 - 2(x + 4)$

$7x + 14 - 2x - 8$

$5x + 6$

$x - 3 + 7(x + 3) - 3x - 12$

$x - 3 + 7(x + 3) - 3x - 12$

$x - 3 + 7x + 21 - 3x - 12$

$5x + 6$

12 Use two different methods to expand $\frac{1}{4}(x + 2x + 16 - 8)$.

Possible answer:

Method 1: $\frac{1}{4}(x + 2x + 16 - 8)$

$\frac{1}{4}(3x + 8)$

$\frac{3}{4}x + 2$

Method 2: $\frac{1}{4}(x + 2x + 16 - 8)$

$\frac{1}{4}x + \frac{1}{2}x + 4 - 2$

$\frac{3}{4}x + 2$

Factoring Expressions

➤ **Factor each expression.**

1. $8a + 16$

   $8(a + 2)$

2. $12x - 20$

   $4(3x - 5)$

3. $-6a + 18$

   $-6(a - 3)$

4. $-14w - 21$

   $-7(2w + 3)$

5. $8a - 12b + 28$

   $4(2a - 3b + 7)$

6. $-6x + 15y - 24$

   $-3(2x - 5y + 8)$

7. $2a + 3 + 7a$

   $3(3a + 1)$

8. $-2x - 8x + 20$

   $-10(x - 2)$

9. $5y + 10 - 25y$

   $-10(2y - 1)$

10. Simplify $(4x + 7) - (-3x - 9) + 9x - 28$. Then rewrite in factored form, if possible. Show your work.

    $4x + 7 + 3x + 9 + 9x - 28$

    $16x - 12$

    $4(4x - 3)$

Factoring Expressions *continued*

11 Determine which of the following expressions are equivalent. Show your work.

- $\frac{1}{6}(x - 3)$
- $\frac{1}{4}x - \frac{3}{5} - \frac{1}{12}x + \frac{1}{10}$
- $\frac{1}{18}x + \frac{1}{9}x - \frac{1}{2}$

Possible work:

$\frac{1}{4}x - \frac{6}{10} - \frac{1}{12}x + \frac{1}{10}$

$\frac{6}{24}x - \frac{6}{10} - \frac{2}{24}x + \frac{1}{10}$

$\frac{4}{24}x - \frac{5}{10}$

$\frac{1}{6}x - \frac{1}{2}$

$\frac{1}{6}(x - 3)$

$\frac{1}{18}x + \frac{1}{9}x - \frac{1}{2}$

$\frac{1}{18}x + \frac{2}{18}x - \frac{1}{2}$

$\frac{3}{18}x - \frac{1}{2}$

$\frac{1}{6}(x - 3)$

All three expressions are equivalent.

12 Explain a different method you could use to solve problem 11.

Possible answer: I could have expanded $\frac{1}{6}(x - 3)$ into $\frac{1}{6}x - \frac{1}{2}$ in the first expression. Then I could combine like terms in the second and third expressions and skip the factoring step, to show that all three expressions are equivalent to $\frac{1}{6}x - \frac{1}{2}$.

Understanding Representing a Situation with Different Expressions

➤ **Complete the problems by rewriting algebraic expressions.**

1. Goby fish and shrimp naturally live close together. A pet store is selling bags of goby fish and shrimp to aquarium hobbyists. Each goby fish costs $15, and each shrimp costs $10. Each bag has an equal number of goby fish and shrimp.

   a. The pet store models the cost per bag with the expression $x(15 + 10)$. Explain what the expression represents.

   Possible answer: The expression $(15 + 10)$ shows the cost of one fish and the cost of one shrimp. The variable x represents the number of fish and the number of shrimp in each bag. The sum of the two costs is multiplied by the number of fish and shrimp in each bag.

   b. What other expression can you use to model the cost? Explain what the expression represents.

   Possible answer: $25x$; The expression shows the total cost for a bag that contains x fish and shrimp.

2. Ms. Ghandi runs 1 mile each morning and 1 mile each evening. She also does 10 push-ups each morning and each evening.

   a. Ms. Ghandi writes the two expressions $2(m + 10p)$ and $2m + 20p$. Explain how each expression represents how much she exercises.

   Possible answer: $2(m + 10p)$ shows that she runs 1 mile and does 10 push-ups two times a day. $2m + 20p$ shows that she runs 2 miles and does 20 push-ups each day.

   b. Ms. Ghandi wants to determine how much she will exercise this week. Write an expression to model this situation. Explain your expression.

   Possible answer: $7(2m + 20p)$; $2m + 20p$ is the amount of exercise that she does in 1 day. Multiply that expression by 7 to find the amount of exercise she does in 7 days.

3. Write two expressions for the perimeter of a square. Explain what information is in one of your expressions that is not in the other.

   Possible answer: $4x + 20$ and $4(x + 5)$; $4(x + 5)$ lets you see that the side length of the side of the square is $x + 5$.

Writing and Solving Equations with Two or More Addends

➤ **Solve each equation. The answers are mixed up at the bottom of the page. Cross out the answers as you complete the problems.**

1. $8x + 15 = 63$

   $x = 6$

2. $9x - 13 = 23$

   $x = 4$

3. $135 = 2x + 25$

   $x = 55$

4. $33 = 32x - 31$

   $x = 2$

5. $12x - 16 = 68$

   $x = 7$

6. $7x + 115 = 136$

   $x = 3$

7. $82 = 4x + 14$

   $x = 17$

8. $2x - 56 = 34$

   $x = 45$

9. $3x - 4\frac{1}{2} = -19\frac{1}{2}$

   $x = -5$

10. $10 = -\frac{1}{4}x + 12$

    $x = 8$

11. $6x + 4.59 = 11.19$

    $x = 1.1$

12. $25.68 = 2x - 6.32$

    $x = 16$

Answers

$x = 1.1$	$x = 45$	$x = -5$	$x = 6$
$x = 7$	$x = 16$	$x = 4$	$x = 55$
$x = 17$	$x = 8$	$x = 2$	$x = 3$

Writing and Solving Inequalities

➤ **Write and solve an inequality to answer each question.**

1. Tetsuo has 50 arcade tokens. Each arcade game at RetroRama costs 4 tokens. How many games can Tetsuo play?

$4t \leq 50$

$t \leq 12.5$

Tetsuo can play 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12 games.

2. Kimberly has $120 to spend at the bookstore. Kimberly buys a hardcover book for $36, as well as some gift cards for her family and friends. Each gift card is $15. How many gift cards can Kimberly buy?

$15g + 36 \leq 120$

$15g \leq 84$

$g \leq 5.6$

Kimberly can buy 0, 1, 2, 3, 4, or 5 gift cards.

3. Kwame has a budget of $720 for his college class. He buys a laptop for $330 and wants to use the rest to buy computer programs. Each program costs $60. How many programs can Kwame purchase?

$60p + 330 \leq 720$

$60p \leq 390$

$p \leq 6.5$

Kwame can buy 0, 1, 2, 3, 4, 5, or 6 computer programs.

4. A farmer ties 4 bags on his mule. If the mule can carry up to 200 lb and each bag weighs 30 lb, how many more bags can the mule carry?

$4(30) + 30b \leq 200$

$120 + 30b \leq 200$

$30b \leq 80$

$b \leq 2.\overline{6}$

The mule can carry 0, 1, or 2 more bags.

Writing and Solving Inequalities *continued*

5 Helga signs up to coach hockey. She wants to make at least $775 during the season. She gets $200 at the start of the season and $50 for each practice session she has. How many practice sessions does Helga need to have this season?

$50p + 200 \geq 775$

$50p \geq 575$

$p \geq 11.5$

Helga needs to have at least 12 practice sessions.

6 Logan has a budget of $400 to have family pictures taken. There is a sitting fee of $38. Prints cost $25 per page. How many pages of prints can Logan order?

$25p + 38 \leq 400$

$25p \leq 362$

$p \leq 14.48$

Logan can order 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, or 14 pages of prints.

7 At TopLine's 50th anniversary celebration, managers and assistants earn custom-engraved plaques in recognition of their outstanding performance. TopLine purchased a total of 81 plaques for the event. The company gives 25 plaques to the managers and at least 2 plaques to each assistant. What is the maximum number of assistants at the event?

$2a + 25 \leq 81$

$2a \leq 56$

$a \leq 28$

The maximum number of assistants at the event is 28.

8 A cartoonist has 150 pieces of original artwork to give to his publishers and some fans who won his online contest. He plans to send 30 drawings to his publishers. He is sending at least 3 pieces of artwork to each contest winner. How many contest winners could there be?

$3c + 30 \leq 150$

$3c \leq 120$

$c \leq 40$

There could be up to 40 contest winners.