



Compton USD Learning Packet #3

Tenth Grade

10th Grade Learning Packet

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Eating for Energy



Good food choices give your body lots of energy.

Fast Facts

- One gram of carbohydrates provides about 4 calories.
- One gram of fat provides about 9 calories.
- Teens generally need 2,200 to 2,800 calories a day.

Healthful Eating

Food provides energy for everything you do, from using a computer to playing sports. Nutrition is the science that studies²² how bodies use food. Everyone has different nutritional needs because everyone needs different amounts of energy.³⁸

Food energy is measured in calories. One calorie is the amount of energy needed to raise the temperature of 1 gram of water 1 degree. Fruits, vegetables, and grains are good sources of calories.⁷²

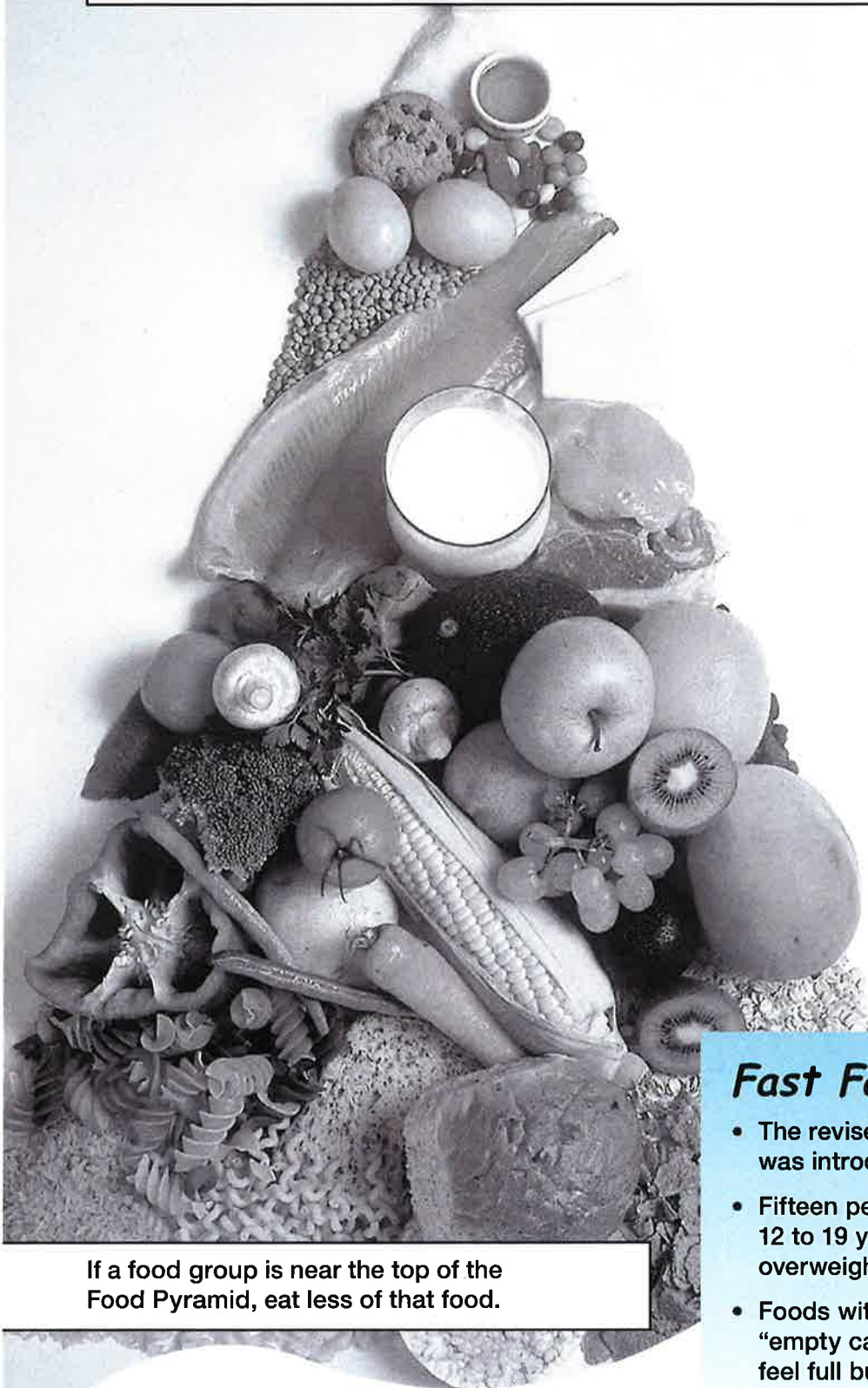
You can create a nutritious diet by choosing and preparing your food wisely. Bananas provide better nutrition than candy.⁹¹ That's because candy gives you quick energy, but that energy soon fades. Baked potatoes also provide better nutrition than fried potatoes. That's because fried potatoes add fat to your diet.¹²¹

KEY NOTES

Healthful Eating

What is healthful eating?

Eating for Energy



If a food group is near the top of the Food Pyramid, eat less of that food.

Fast Facts

- The revised Food Pyramid was introduced in 2005.
- Fifteen percent of Americans 12 to 19 years old are overweight.
- Foods with sugar often have “empty calories,” making you feel full but providing few nutrients.

The Food Pyramid

People who study how bodies use food are called nutritionists. Nutritionists divide food into five main groups. A healthful diet has a balance of foods from all five groups.³²

The five food groups are grains, vegetables, fruits, dairy products, and meat and beans. Your body also needs fats, but only in small amounts.⁵⁶

The Food Pyramid shows what kinds of foods make up a balanced diet. Using the pyramid helps you choose the right⁷⁷ amounts of food from each group and reminds you that exercise is also important for health.⁹³

A healthful diet helps keep you fit. It gives you the energy you need to perform well in school and in sports, and it helps you enjoy spending time with friends.¹²⁴

KEY NOTES

The Food Pyramid

What is the Food Pyramid?

Eating for Energy

Nutrition Facts

Serving Size 1 Tbsp (14g)

Servings Per Container 32

Amount Per Serving

Calories 100 Calories from Fat 100

% Daily Value*

Total Fat 11g **17%**

Saturated Fat 7g **36%**

Cholesterol 30mg **10%**

Sodium 90mg **4%**

Total Carbohydrate 0g **0%**

Protein 0g

Vitamin A 8%

Not a significant source of dietary fiber, sugars, vitamin C, calcium and iron.

*Percent Daily Values are based on a 2,000 calorie diet.

INGREDIENTS: CREAM, SALT, ANNATTO (FOR COLOR)

SWEET CREAM • SALT

The nutrition of one serving of food is shown on a label.

Fast Facts

- The Nutrition Labeling and Education Act was passed in 1990.
- Nutrition label percentages are based on 2,000 calories a day.
- Nutrition label information is based on *one serving* of a food in a package, not on *all* the food in the package.

Nutrition Labels

Nutrition labels tell us if a food meets our nutritional needs. They list the amounts of nutrients that are in one serving of a²⁶ food, including carbohydrates and fats. Nutrition labels also list how much of each nutrient you need every day. This number is⁴⁷ listed as a percent of the total number of calories many people eat in a day.⁶³

Nutrition labels can help you choose healthful foods. They can show you that eating pasta is a better choice than eating⁸⁴ potato chips. That's because pasta's carbohydrates give you energy that lasts longer.⁹⁶

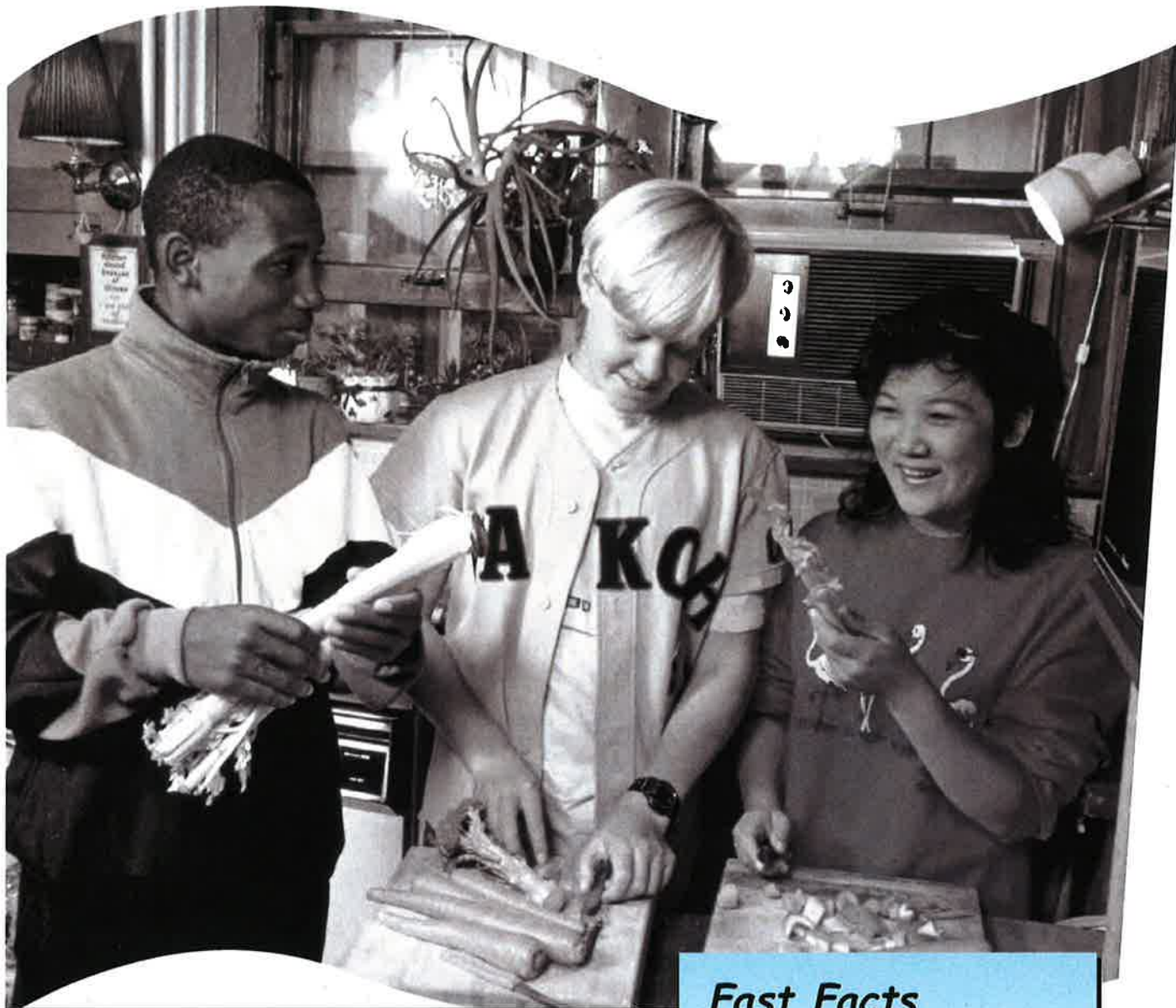
The next time you buy food, even a snack, read the nutrition label. It can help you choose a food that can keep you healthy and strong.¹²³

KEY NOTES

Nutrition Labels

What do nutrition labels show?

Eating for Energy



Fruits and vegetables contain Vitamin C.

Fast Facts

- There are 13 vitamins: A, C, D, E, K, and 8 vitamins called the B complex.
- One way you can get vitamin D is from sunlight.
- You need some minerals in very small amounts. These minerals are called trace elements.

Vitamins and Minerals

Two kinds of nutrients you get from food are vitamins and minerals. Vitamins help your body change food into energy²³ and build strength. Vitamin A is needed for healthy skin and strong bones. Vitamin B12 helps your body form new red blood cells. Vitamin C is important for good teeth and helps fight colds.⁵⁷

Minerals help you grow and stay healthy. They build strong bones and teeth and keep your muscles and nerves healthy. Iron⁷⁸ is a mineral that helps oxygen get to your red blood cells. The mineral copper helps your body use iron.⁹⁸

Your body works hard all day. You can keep it working well by eating right to get the vitamins and minerals you need.¹²¹

KEY NOTES

Vitamins and Minerals

What are vitamins and minerals?

Explain 1 Finding the Sine and Cosine of an Angle

Trigonometric Ratios

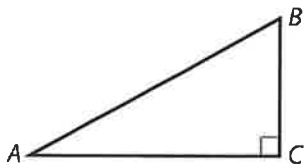
A **trigonometric ratio** is a ratio of two sides of a right triangle. You have already seen one trigonometric ratio, the tangent. There are two additional trigonometric ratios, the sine and the cosine, that involve the hypotenuse of a right triangle.

The **sine** of $\angle A$, written $\sin A$, is defined as follows:

$$\sin A = \frac{\text{length of leg opposite } \angle A}{\text{length of hypotenuse}} = \frac{BC}{AB}$$

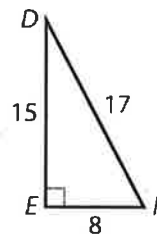
The **cosine** of $\angle A$, written $\cos A$, is defined as follows:

$$\cos A = \frac{\text{length of leg adjacent to } \angle A}{\text{length of hypotenuse}} = \frac{AC}{AB}$$



You can use these definitions to calculate trigonometric ratios.

Example 1 Write sine and cosine of each angle as a fraction and as a decimal rounded to the nearest thousandth.



(A) $\angle D$

$$\sin D = \frac{\text{length of leg opposite } \angle D}{\text{length of hypotenuse}} = \frac{EF}{DF} = \frac{8}{17} \approx 0.471$$

$$\cos D = \frac{\text{length of leg adjacent to } \angle D}{\text{length of hypotenuse}} = \frac{DE}{DF} = \frac{15}{17} \approx 0.882$$

(B) $\angle F$

$$\sin F = \frac{\text{length of leg opposite to } \angle F}{\text{length of hypotenuse}} = \frac{DE}{DF} = \frac{15}{17} \approx \quad \approx$$

$$\cos F = \frac{\text{length of leg adjacent to } \angle F}{\text{length of hypotenuse}} = \frac{EF}{DF} = \frac{8}{17} \approx \quad \approx$$

Reflect

4. What do you notice about the sines and cosines you found? Do you think this relationship will be true for any pair of acute angles in a right triangle? Explain.

5. In a right triangle $\triangle PQR$ with $PR = 5$, $QR = 3$, and $m\angle Q = 90^\circ$, what are the values of $\sin P$ and $\cos P$?

$$\sin P =$$

$$\cos P =$$

16. How are the inverse sine and cosine ratios for an acute angle of a right triangle defined?

17. Essential Question Check-In How do you find an unknown angle measure in a right triangle?

Evaluate: Homework and Practice



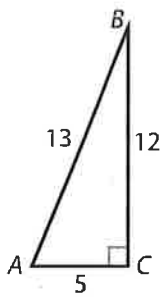
- Online Homework
- Hints and Help
- Extra Practice

Write each trigonometric expression. Round trigonometric ratios to the nearest thousandth.

1. Given that $\sin 60^\circ \approx 0.866$, write the cosine of a complementary angle.

2. Given that $\cos 26^\circ \approx 0.899$, write the sine of a complementary angle.

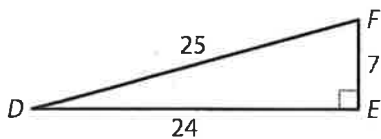
Write each trigonometric ratio as a fraction and as a decimal, rounded (if necessary) to the nearest thousandth.



3. $\sin A$

4. $\cos A$

5. $\cos B$



6. $\sin D$

7. $\cos F$

8. $\sin F$

Document A: Woodrow Wilson Speech #1 (Modified)

The people of the United States are drawn from many nations, and chiefly from the nations now at war. It is natural and inevitable that some will wish one nation, others another, to succeed in the momentous struggle.

Such divisions among us would be fatal to our peace of mind and might seriously stand in the way of our duty as the one great nation at peace, the one nation ready to play a part of mediator and counselor of peace.

The United States must be neutral in fact, as well as in name, during these days that are to try men's souls. We must be impartial in thought, as well as action.

Source: *President Woodrow Wilson, in a speech before Congress, August 19, 1914.*

Vocabulary

mediator: someone who helps two groups reach an agreement

impartial: taking no sides

Eating for Energy

Healthful Eating

1. Why does your body need food?

- a. Food provides energy for everything you do.
- b. Food is a good source of energy.
- c. Food helps you use a computer and play sports.
- d. all of the above

2. How can you create a nutritious diet?

- a. by choosing foods that taste good
- b. by eating only fruits and vegetables
- c. by choosing and preparing food wisely
- d. by eating foods that have lots of energy

3. Why should different people eat different amounts of food?

The Food Pyramid

1. What does the Food Pyramid show?

- a. the kinds of foods you can buy in stores
- b. the kinds of foods that are in a balanced diet
- c. the kinds of fruits and vegetables you should eat
- d. the kinds of foods that nutritionists like to eat

2. What else does the Food Pyramid show?

3. What are some benefits of a healthful diet?

Nutrition Labels

1. Nutrition labels show _____

- a. how the food is prepared.
- b. the amount of energy in the nutrients.
- c. how much one serving of a food costs.
- d. the nutrients in one serving of a food.

2. Nutrition labels are meant to help people _____

- a. know how a food tastes.
- b. prepare a food.
- c. balance their diet.
- d. know who made the food.

3. Why should people read nutrition labels before they buy or eat food?

Vitamins and Minerals

1. Why do you need vitamins and minerals?

- a. to build strength
- b. to stay healthy
- c. to help your body work well
- d. all of the above

2. What are two ways your body uses vitamins?

3. What are two ways your body uses minerals?

SOHCAHTOA, Sine, Cosine and Tangent : 1 - What It Means

doctortesla (56) (@doctortesla) in #science (/trending/science) • 3 years ago

SOHCAHTOA-----

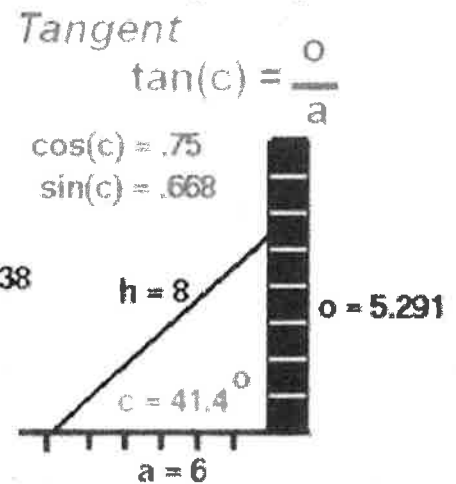
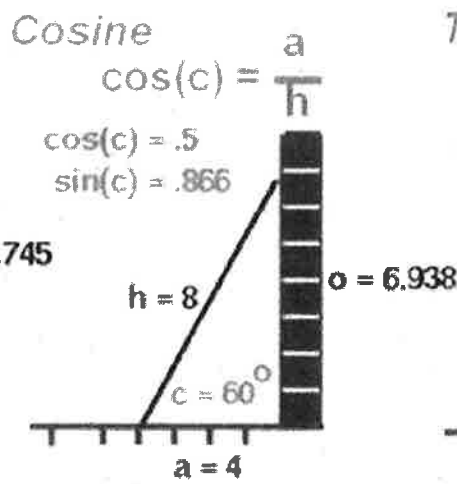
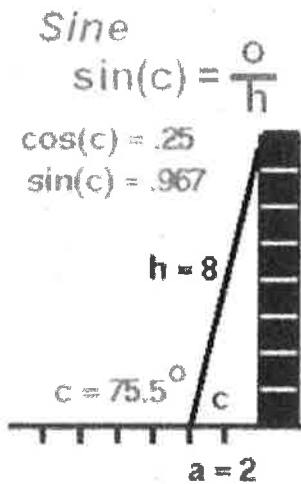
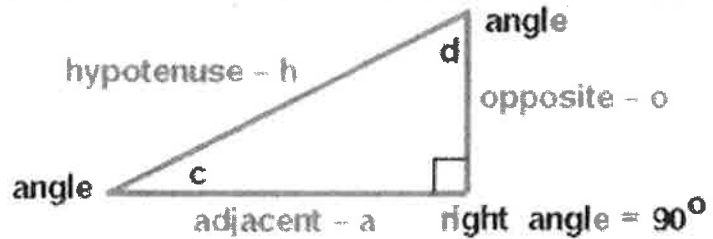


Sine - Cosine - Tangent

Glenn Research Center

Definitions:

Assign a name to the ratio of the length of the sides of a right triangle



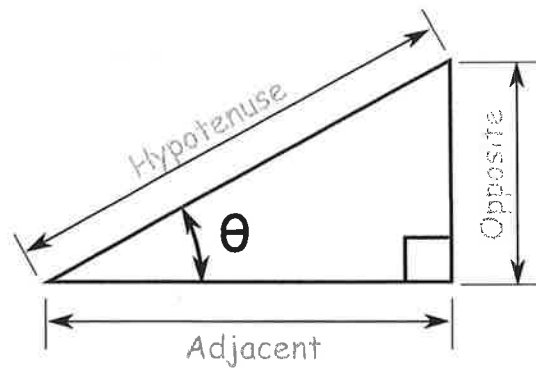
The value of each ratio depends only on the size of the angle formed by the adjacent and hypotenuse.

This is the standard model of a right triangle displaying the adjacent, opposite and hypotenuse.

$$\sin \theta = \frac{\text{Opposite}}{\text{Hypotenuse}}$$

$$\cos \theta = \frac{\text{Adjacent}}{\text{Hypotenuse}}$$

$$\tan \theta = \frac{\text{Opposite}}{\text{Adjacent}}$$

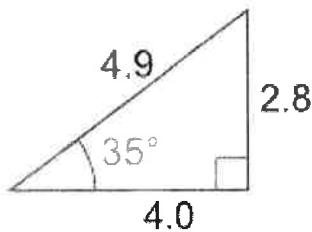


For a given angle θ each ratio stays the same no matter how big or small the triangle is

To calculate them:

Divide the length of one side by another side

Example: What is the sine of 35° ?



Using this triangle (lengths are only to one decimal place):

$$\begin{aligned} \sin(35^\circ) &= \frac{\text{Opposite}}{\text{Hypotenuse}} \\ &= \frac{2.8}{4.9} \\ &= \mathbf{0.57\dots} \end{aligned}$$

$$\begin{aligned} \cos(35^\circ) &= \frac{\text{Adjacent}}{\text{Hypotenuse}} \\ &= \frac{4.0}{4.9} \\ &= \mathbf{0.82\dots} \end{aligned}$$

$$\begin{aligned} \tan(35^\circ) &= \frac{\text{Opposite}}{\text{Adjacent}} \\ &= \frac{2.8}{4.0} \\ &= \mathbf{0.70\dots} \end{aligned}$$

Size Does Not Matter

The triangle can be large or small and the **ratio of sides stays the same**.

Right Triangle Trig Review

Warm Up – Trig Ratio Recap

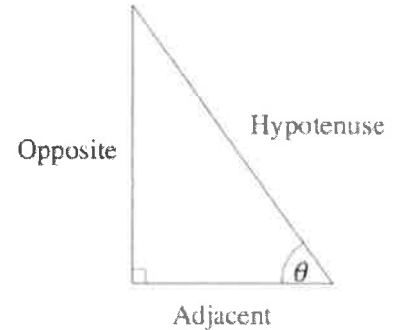
(Work on this part individually)

For a right triangle, the sine, cosine, and tangent of the angle θ is defined as:

$$\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$$

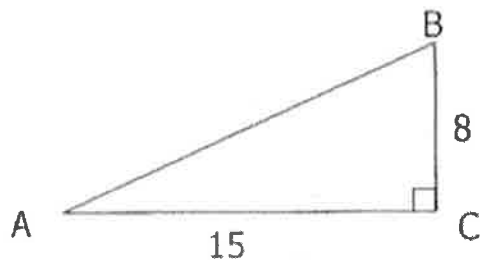
$$\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$$



Remember:

Example 1 Using Trig Ratios



$$\sin A = \frac{8}{17}$$

$$\sin B = \frac{15}{17}$$

$$\cos A = \frac{15}{17}$$

$$\cos B = \frac{8}{17}$$

$$\tan A = \frac{8}{15}$$

$$\tan B = \frac{15}{8}$$

Example 2 Finding Missing Sides

Use trig ratios to find the missing sides of the following triangles. Make sure your calc is in DEGREE MODE!

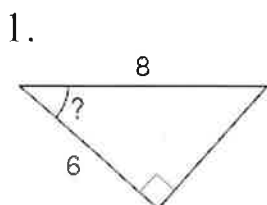
<p>1.</p> <p> $\sin 70 = \frac{x}{7}$ $x = 7 \sin 70$ $x = 6.58$ </p>	<p>2.</p>	<p>3.</p>	<p>4.</p>
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Example 3 Finding Missing Angles

To find a missing angle in a right triangle, we must use inverse trigonometry.

Ex: $\sin(\text{angle}) = \text{value} \implies \sin^{-1}(\text{value}) = \text{angle}$
 $\sin(30^\circ) = 0.5 \implies \sin^{-1}(0.5) = 30^\circ$

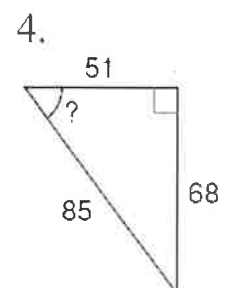
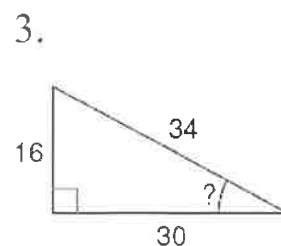
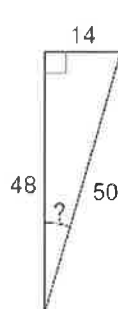
Find the ? angle measure to the nearest degree.



2.

$$\cos^{-1} \frac{6}{8} = ?$$

$$? = 41.41^\circ$$



Still confused on the right triangle trig ratios? Try watching:

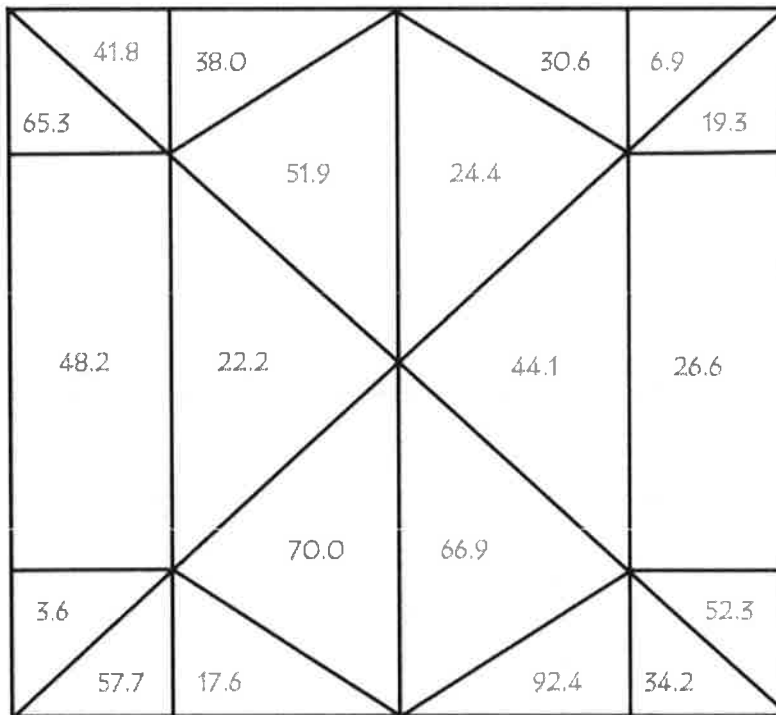
https://www.khanacademy.org/math/trigonometry/basic-trigonometry/basic_trig_ratios/v/basic-trigonometry

https://www.khanacademy.org/math/trigonometry/basic-trigonometry/basic_trig_ratios/v/example-trig-to-solve-the-sides-and-angles-of-a-right-triangle

Task 1 – Trig Ratio Puzzle

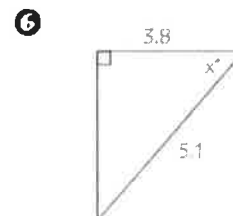
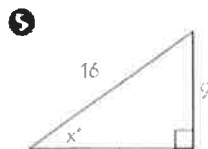
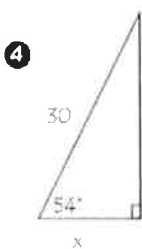
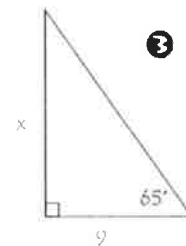
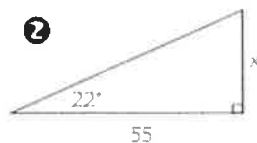
(Work on this part with your table partner)

Directions: Find the value of x in the following problems. Then, find the answer in the puzzle above and color that piece according to your color chart. The answers will only be used once and not all answers will be used.



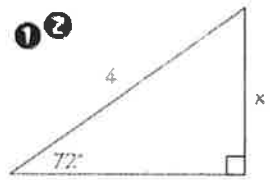
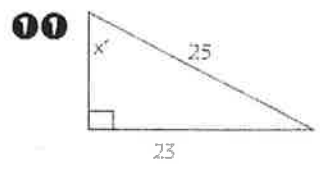
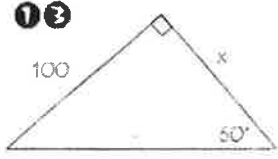
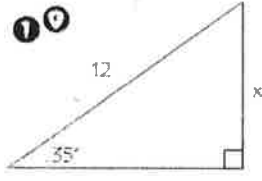
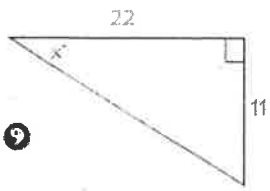
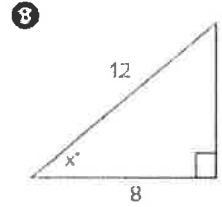
Color 1

1 $\sin 27^\circ = \frac{x}{8}$



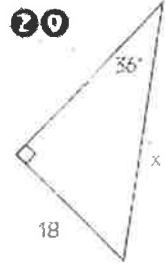
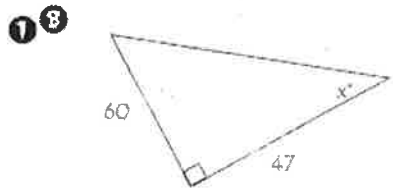
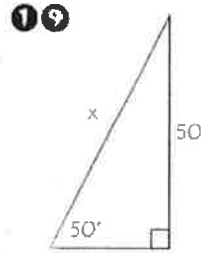
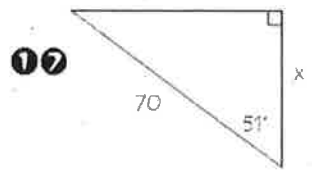
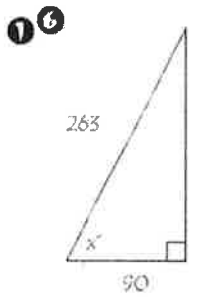
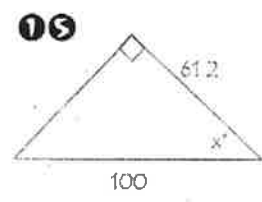
Color 2

7 $\tan 18^\circ = \frac{x}{75}$



Color 3

14 $\cos 5^\circ = \frac{92}{y}$



Document B: Woodrow Wilson Speech #2 (Modified)

Property can be paid for; the lives of peaceful and innocent people cannot be. The present German submarine warfare against commerce is a warfare against mankind.

The German policy has swept every restriction aside. Ships of every kind, whatever their flag, their character, their cargo, their destination, their errand, have been ruthlessly sent to the bottom of the ocean without warning. American ships have been sunk, American lives taken.

I advise that the Congress declare the recent actions of the Imperial German Government to be, in fact, nothing less than war against the Government and people of the United States.

Neutrality is no longer feasible or desirable where the peace of the world is involved.

The world must be made safe for democracy. We have no selfish ends to serve. We desire no conquest, no dominion. We seek not material compensation for the sacrifices we shall freely make. We are but one of the champions of the rights of mankind.

It is a fearful, but right thing to lead this great peaceful people to war. We shall fight for the things which we have always carried nearest our hearts – for democracy, for the right of [people] to have a voice in their own government, for the rights and liberties of small nations.

Source: *President Woodrow Wilson, in a speech before Congress, April 2, 1917.*

Vocabulary

commerce: trade

feasible: possible

dominion: control or domination

material compensation: money

nutrition	calorie	nutritionists	pyramid
carbohydrates	nutrients	vitamin	mineral

1. Choose the word from the word box above that best matches each definition. Write the word on the line below.

- A. _____ people who study food and how bodies use it
- B. _____ things found in foods that provide nutrition
- C. _____ nutrients that are found in pasta and other grains
- D. _____ a kind of nutrient that helps your body build healthy skin and teeth
- E. _____ a kind of nutrient that helps your body get oxygen to your blood cells
- F. _____ a unit that is used to measure the energy in food
- G. _____ the science that studies how the body uses food
- H. _____ a shape with a point at the top and a broad base

2. Fill in the blanks in the sentences below. Choose the word from the word box that completes each sentence.

- A. To check his diet, Marco listed the _____ in all of the foods he ate.
- B. Alex went to school to study _____ because he was interested in foods.
- C. Sara watched the _____ counts of the foods she ate so she could lose weight.
- D. The Food _____ tells you how to balance your diet.
- E. Iron is a kind of _____ that helps our red blood cells get oxygen.
- F. There is a lot of _____ C in oranges and other fruits.
- G. Karen talked to several _____ to make sure she ate properly before the race.
- H. Bread has a rich supply of _____.

Document C: Textbook Excerpt on U.S. Entry into WWI

In January 1917, Germany reversed its policy on submarine warfare. It announced that it would sink on sight all merchant vessels, armed or unarmed, sailing to Allied ports. While realizing that their policy might bring the Americans into war, the Germans believed they could defeat the Allies before the United States became heavily involved. An angry president Wilson broke off diplomatic relations with Germany.

A few weeks later, a secret telegram- intercepted by the British government- set off a new wave of anti-German feeling. In late February the German foreign minister, Arthur Zimmerman, sent a telegram to Mexico with an offer to the Mexican government.

Newspapers published the secret Zimmerman telegram on March 1, and the Americans reacted angrily to the German action.

Source: *The American Journey*, New York: Glencoe/McGraw-Hill, 2003.

Eating for Energy

1. Use the chart to help you remember what you read. In the right column, complete the sentences that begin in the left column.

<p>A. To eat right for energy, we should _____</p>	
<p>B. The Food Pyramid helps us to _____</p>	
<p>C. Nutrition labels help us to _____</p>	
<p>D. Vitamins help our bodies _____</p>	
<p>E. Minerals help our bodies _____</p>	

2. Why is it important to eat healthfully?

3. What would you tell someone who wanted to learn to eat healthfully?

4. What are two changes you can make to your diet so you will eat more healthfully?

Document D: Historian Howard Zinn (Excerpted from Original)

Howard Zinn was a historian and activist who is best known today as the author of A People's History of the United States, a book that tells American history from the perspective of people of color, women, and poor people. The book is very critical of the United States government.

President Woodrow Wilson had promised that the United States would stay neutral in the war. . . . But in April of 1917, the Germans had announced they would have their submarines sink any ship bringing supplies to their enemies; and they had sunk a number of merchant vessels. Wilson now said he must stand by the right of Americans to travel on merchant ships in the war zone. . . .

As Richard Hofstadter points out (*The American Political Tradition*): "This was rationalization of the flimsiest sort. . . . The British had also been intruding on the rights of American citizens on the high seas, but Wilson was not suggesting we go to war with them. . . .

The United States claimed the *Lusitania* carried an innocent cargo, and therefore the torpedoing was a monstrous German atrocity. Actually, the *Lusitania* was heavily armed: it carried 1,248 cases of 3-inch shells, 4,927 boxes of cartridges (1,000 rounds in each box), and 2,000 more cases of small-arms ammunition. . . . The British and American governments lied about the cargo. . . .

Prosperity depended much on foreign markets, it was believed by the leaders of the country. In 1897, private foreign investments of the United States amounted to \$700 million dollars. By 1914, they were \$3.5 billion. . .

With World War I, England became more and more a market for American goods and for loans at interest. J.P. Morgan and Company acted as agents for the Allies and when, in 1915, Wilson lifted the ban on private bank loans to the Allies, Morgan could now begin lending money in such great amounts as to both make great profit and tie American finance closely to the interest of a British victory in the war against Germany.

Source: *Howard Zinn, A People's History of the United States, 1980.*

Guiding Questions

Name _____

President Wilson's Speeches

1. Read the first speech. Does Wilson think the United States should enter WWI? Why or why not?
2. Read the second speech. Does Wilson think the United States should enter WWI? Why or why not?
3. Contextualization: Use the 1917 speech to "imagine the setting." (a) What does Wilson accuse Germany of doing? (b) Do you think this is a good reason to go to war? (c) What additional information would you need to have before making a decision?
4. Close reading: Re-read the last two paragraphs of the 1917 speech. Why do you think Wilson added these paragraphs? How do you think these words made Americans feel?