



PLANNED INSTRUCTION LESSON MATERIALS

8th Grade

DUE DATE: FRIDAY, MAY 29TH

Please complete the following materials by the due date noted above.

Completed materials may be dropped off at the school (1006 West 10th Street) during food distribution Tuesdays and Fridays from 10:00am – 12:00noon, or turned in when the next week's materials are delivered to your home.

If you need assistance in completing the attached materials, please reach out to your classroom teacher via email, the school's website or Facebook page, or Class Dojo. You may also call the school directly Monday – Friday from 9:30-5:30 at 814-520-6468

Mrs. Veronica Will, Principal 814 873-5158

Mr. Aubrey Favors, Interim CEO 814 812-3026

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Today, China is one of the world's most powerful countries.

The Land of China

How have rivers, mountains, and deserts shaped the development of China's civilization?

The ancient civilizations of Egypt, Mesopotamia, and India developed along large rivers. Hundreds of years later in East Asia, another civilization began along the Huang He (HWANG HUH). In Chinese, Huang He means "yellow river." This civilization was China. China has gone through many changes over the centuries, but it is still a strong and growing civilization today.

Powerful Rivers

The Huang He stretches east across China for more than 2,900 miles (4,666 km). It begins in China's western mountains and flows to the Pacific Ocean. On its way, the Huang He cuts through thick layers of rich, yellow soil. This soil is called loess (LEHS). The river carries away large amounts of loess and spreads it farther downstream. The yellow color of the soil in the Huang He gives the river its name.

The rich soil helps farmers grow large amounts of food on small plots of land. As a result, the Huang He valley **emerged** as one of the great wheat-producing areas of the ancient world.

The Huang He has benefited the people of the Huang He valley. The river has also brought great misfortune. The Huang He often overflows its banks, causing enormous floods. Since 600 B.C., the Chinese have recorded more than 1,500 floods of the Huang He. These floods have taken millions of lives. The Chinese call the Huang He "China's Sorrow" in honor of the people killed by the floods.

Over time, the people of China moved south and settled near another great river, the Chang Jiang (CHAHNG JYAHNG), or the Yangtze River. The Chang Jiang flows from west to east across central China. It flows through spectacular canyons and broad plains on its way to the East China Sea. The Chang Jiang is about 3,915 miles (6,300 km) long. Only the Amazon in South America and the Nile in Africa are longer.

Like the Huang He, the Chang Jiang provides rich soil for farming. Early farmers grew rice along the river's shores. The Chang Jiang was also an important waterway for trade and transportation.

Mountains and Desert

China has fertile river valleys, but only about one-tenth of its land can be farmed. Mountains and desert cover much of the country's land. To the southwest, the towering Himalaya separate China from South Asia. The Kunlun Shan and Tian Shan mountain ranges slice through western China. East of the Tian Shan is a vast, rocky desert known as the Gobi.

For centuries, these rugged mountains and the barren desert acted like walls around the country. These barriers limited contacts between China and other civilizations. The Chinese developed a unique culture and a strong sense of independence. They called their land "the Middle Kingdom." To them, it was the center of the world.

Identifying How did rivers help civilization develop in China?

The First Chinese Dynasty

Why did China's Shang rulers become powerful?

What we know about the early people of China comes from the things they left behind. Archaeologists have unearthed clay pots and cups in the Huang He valley that date back thousands of years. These artifacts show that the Huang He valley was the birthplace of Chinese civilization.

Archaeologists think that people settled in the valley because of its rich soil. Early settlers farmed the land. As in other early civilizations, people here also used the river for travel and trade. As the population grew, the Chinese began building towns.

Myths and Legends

Like other early peoples, the ancient Chinese created myths to explain the creation of their world. Many Chinese myths celebrate the deeds of great heroes. Yü the Great was one of these heroes. According to myths, Yü dug the first channels to control the floodwaters of the Huang He. Yü chased away the dragon that caused the floods. Then, he started digging the **channels**. According to the myth, Yü was aided in his task by other dragons. One dragon used its tail to help dig the channels. Still, it took 13 long years to complete the work. After the channels were finished, the flood waters could flow safely away to the sea.

Legend has it that Yü founded China's first dynasty. That dynasty, named the Xia (SHYAH), began about 2000 B.C. Archaeologists, however, have not found any historical evidence of the Xia. Based on written records, China's first dynasty is the Shang. Shang kings ruled China from about 1750 B.C. to 1045 B.C.

Who Were the Shang?

Archaeologists have unearthed long-buried walls and buildings. These ruins show that the Shang built the first cities in China. Among these cities was the royal capital of Anyang (AHN • YAHNG). A palace and temple stood at the center of the city. Public buildings and the homes of government officials circled this central area. Beyond the city's center stood workshops and other homes.

The king was the most powerful person, serving as the political, religious, and military leader of Shang China. At first, Shang kings controlled only a small area of northern China. In time, the Shang conquered neighboring areas. They ruled over most of the people of the Huang He valley.

As the Shang kingdom grew, kings sent out large armies to defend the kingdom's borders. They appointed people called warlords to govern local territories. **Warlords** are **military** leaders who lead their own armies. Shang kings **relied** on the warlords to stay in power.

Under the king, warlords and other royal officials formed the upper class. They were **aristocrats** (uh • RIHS • tuh • krats), people of noble birth whose wealth came from the land they owned. Aristocrats passed their land and power to their children or to younger family members.

Most people of Shang China were farmers. There were much smaller groups of merchants, artisans, and slaves. The farmers lived in rural villages and worked the land that belonged to the aristocrats. They raised cattle, sheep, and chickens and grew grains, such as millet, wheat, and rice.

People in Shang China worshipped many gods. The god Shang Ti ruled as supreme god over the lesser gods. According to legend, the gods lived in the mountains, rivers, and seas.

The early Chinese both admired and feared the gods. They believed the gods could bring good or bad fortune. They attempted to please the gods by offering gifts of food and other goods.

The Chinese also honored their **ancestors**, or long-dead family members. They made offerings to their ancestors. They hoped that their ancestors would bring good luck and help in difficult times. Today, many Chinese still pay respect to their ancestors by going to temples and burning small paper copies of food, clothing, and other items. These copies represent things that departed relatives need in the afterlife.

Seeking Guidance from Ancestors

Shang kings believed that they received their power to rule from the gods and their wisdom from their ancestors. For this reason, religion and government were closely linked. For the kings, an important duty was to contact the gods and the ancestors before making important decisions.

The kings asked for help by using oracle (AWR • uh • kuhl) bones. They instructed priests to scratch questions on the bones, such as "Will I win the battle?" or "Will there be an abundant harvest?" Priests heated the oracle bones over a fire until they cracked. The pattern of cracks provided answers from the gods and ancestors to the king's questions.

The ancient Chinese wrote in pictographs and ideographs. Pictographs (PIKH • tuh • grafs) are characters that represent objects. For example, the Chinese characters for the sun and the moon are pictographs. Ideographs (IH • dee • uh • grafs) are another kind of character used in Chinese writing. They link two or more pictographs to express an idea. For example, the ideograph that stands for "forest" combines three pictographs of the word "tree."

Unlike the Chinese language, English and many other languages have writing systems based on an alphabet. An alphabet uses characters that represent sounds. Most characters in the Chinese language represent entire words.

Shang Arts

During the Shang dynasty, the Chinese created objects made of bronze. These works of art are some of the finest bronzes ever made. To make bronze objects, artisans made clay molds in several parts. Then they carved designs into the clay. Finally, they joined the parts of the mold together and poured in melted bronze. When the bronze cooled, the artisans removed the mold. The finished object was a beautifully decorated work of art.

Shang bronze objects included sculptures, daggers, vases, cups, and urns—or large ceremonial containers. The Shang used bronze urns to prepare and serve food for ceremonies to honor their ancestors.

Chinese artists and artisans made many other important advances. Farmers raised silk worms that produced silk. Weavers then made the silk into colorful clothing for wealthy people. Artisans crafted vases and dishes from kaolin (KAY • eh • lehn), a fine, white clay. They also carved statues from ivory and a green stone called jade.

Explaining Why did Shang kings have questions scratched on oracle bones?

Thinking Like a HISTORIAN

Analyzing Sources

Archaeologists study what ancient societies have left behind. Some of what we know about early China and Chinese writing comes from the study of oracle bones. They are a primary source. Suppose you were an archaeologist who dug up a collection of oracle bones. You

would want to analyze them. Use the library to find secondary sources about oracle bones. Write a brief report summarizing your findings and present it to the class. For more information about analyzing sources, read the chapter *What Does a Historian Do?*

The Zhou: China's Longest Dynasty

How did the Zhou claim the right to rule China?

According to legend, the last of the Shang rulers was a wicked tyrant. Many Chinese turned against him. In 1045 B.C., rebels led by an aristocrat named Wu Wang (WOO WAHNG) overthrew the Shang government. When his victory was complete, Wu declared a new dynasty called the Zhou (JOH). The Zhou ruled China for more than 800 years—longer than any other dynasty in Chinese history.

How did the Zhou Rule China?

Zhou kings governed China much as Shang rulers had. The king led the government, ruling with the help of a bureaucracy (byu • RAH • kruh • see). A **bureaucracy** is made up of officials who carry out the tasks of government. The king also put together a strong army to bring weaker kingdoms under Zhou rule.

Soon the Zhou kingdom was larger than that of the Shang. To govern effectively, the king divided the kingdom into territories. He assigned loyal aristocrats to govern each of the territories. The positions the aristocrats held were **hereditary**. This meant that when an aristocrat died, a son or another member of his family governed the territory.

The Chinese believed their king represented them before the gods. The king's chief duty was to carry out religious ceremonies to please the gods. Zhou kings claimed that kings ruled China because they had the Mandate of Heaven.

The Right to Rule

The Mandate of Heaven is the belief that the Chinese king's right to rule came from the gods. The Mandate stated the idea that the gods chose a wise and good person to rule. The person chosen by the gods would govern honestly and well.

The Mandate of Heaven changed what the Zhou people expected from their king. The king must rule by the proper "Way," known as the Dao (DOW). His duty was to honor and please the gods. If there was a natural disaster or a bad harvest, that meant the king had failed and he could be replaced.

Technology and Trade

For many centuries, Chinese farmers had to depend on rain to water their crops. Under Zhou kings, the Chinese developed new systems to irrigate the land. With a better water supply, farmers were able to grow more crops than ever before.

China's trade also expanded. Archaeologists have found pieces of Chinese silk in central Asia and as far away as Greece.

War Between the States

Over time, the aristocrats who ruled the territories of the Zhou kingdom grew more powerful. They ignored the king's commands and took control of their own territory. The aristocrats began to fight one another for power. These wars began in the 400s B.C. and went on for nearly 200 years. Because each aristocrat formed his own state, this time in China's history is called the "Period of the Warring States."

To fill the ranks of their armies, the aristocrats forced farmers to serve as soldiers. Chinese soldiers were armed with swords, spears, and crossbows. As the fighting continued through the years, warriors began using horses. The Chinese developed the saddle and stirrup. Now soldiers could ride around the battlefield while throwing spears or shooting crossbows. The wars fought at this time would result in a new dynasty.

Identifying What technology was developed in China during the Zhou dynasty?

LESSON 1 REVIEW

Review Vocabulary

1. How did a *pictograph* differ from an *ideograph*?

Answer the Guiding Questions

2. **Describing** What geographic features isolated ancient China from other civilizations?

3. **Explaining** How did Shang rulers gain power?

4. **Identifying** What was the chief duty of Zhou kings?

5. **Describing** Describe the biggest change for the Chinese people during the Zhou dynasty.

6. **INFORMATIVE/EXPLANATORY** China's geographic features separated it from other civilizations. Write a paragraph explaining the advantages and disadvantages of isolation.

7. **INFORMATIVE/EXPLANATORY** Write a paragraph that explains why "China's Sorrow" is an appropriate description of the Huang He.

Name:

Define the following vocabulary words:

1. warlord
2. aristocrat
3. ancestor
4. pictograph
5. ideograph
6. bureaucracy
7. hereditary
8. Mandate of Heaven
9. Dao
10. Emerge
11. Channel
12. Military
13. rely

Mr P's Chapter 10-1 Quiz

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* Required

What is your name?

Your answer

A noble whose wealth comes from the land he or she owns *

1 point

- ancestor
- aristocrat
- bureaucracy

a drawn character that stands for objects *

1 point

- ancestor
- bureaucracy
- pictograph

a person who someone is descended from *

1 point

- ancestor
- ideograph
- pictograph



a character that represents a thought used in Chinese writing *

1 point

- ancestor
- bureaucracy
- ideograph

appointed officials who run different parts of the government *

1 point

- bureaucracy
- ideograph
- pictograph

Why do the Chinese call the Huang He "China's Sorrow"?

1 point

- because it is yellow in color
- because its flooding has drowned many people

What new technology was developed during the Zhou Dynasty?

1 point

- new systems to irrigate the land
- silk worms to make clothing

Which answer gives the best explanation of why the Chang Jiang was so important to the people of ancient China?

1 point

- It was a key waterway for trade and transportation
- It flows west to east across central China



Who built the first cities in China? *

1 point

the Shang

the Xia

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SPEECH TO THE
OHIO WOMEN'S CONFERENCE:
AIN'T I A WOMAN?

Account by Frances Dana Gage, *Anti-Slavery Standard*, 1863

1

Well, children, where there is so much racket there must be something out of kilter. I think that **'twixt** the negroes of the South and the women at the North, all talking about rights, the white men will be in a fix pretty soon. But what's all this here talking about?

2

That man over there says that women need to be helped into carriages, and lifted over ditches, and to have the best place everywhere. Nobody ever helps me into carriages, or over mud-puddles, or gives me any best place! And ain't I a woman? Look at me! Look at my arm! I have ploughed and planted, and gathered into barns, and no man could head me! And ain't I a woman? I could work as much and eat as much as a man -when I could get it -and bear the lash as well! And ain't I a woman? I have borne thirteen children, and seen most all sold off to slavery, and when I cried out with my mother's grief, none but Jesus heard me! And ain't I a woman?

3

Then they talk about this thing in the head; what's this they call it? [Member of audience whispers, "intellect."] That's it, honey. What's that got to do with women's rights or negroes' rights? If my cup won't hold but a pint, and yours holds a quart, wouldn't you be mean not to let me have my little half measure full?

4

Then that little man in black there, he says women can't have as much rights as men, 'cause Christ wasn't a woman! Where did your Christ come from? Where did your Christ come from? From God and a woman! Man had nothing to do with Him.

5

If the first woman God ever made was strong enough to turn the world upside down all alone, these women together ought to be able to turn it back, and get it right side up again! And now they is asking to do it, the men better let them.

6

Obliged to you for hearing me, and now old Sojourner ain't got nothing more to say.

Account by Marius Robinson, *Anti-Slavery Bugle*, 1851:

7

I want to say a few words about this matter. I am for a woman's rights. I have as much muscle as any man, and can do as much work as any man. I have plowed and reaped and husked and chopped and mowed, and can any man do more than that? I have heard much about the sexes being equal. I can carry as much as any man, and can eat as much too, if I can get it. I am as strong as any man that is now.

8

As for intellect, all I can say is, if a woman have a pint, and a man a quart—why can't she have her little pint full? You need not be afraid to give us our rights for fear we will take too much—for we can't take more than our pint'll hold.

9

The poor men seems to be all in confusion and don't know what to do. Why children, if you have woman's rights, give it to her and you will feel better. You will have your own rights, and they won't be so much trouble.

10

I can't read, but I can hear. I have heard the Bible and have learned that Eve caused man to sin. Well, if woman upset the world, do give her a chance to set it right side up again. The lady has spoken about Jesus, how he never **spurned** woman from him, and she was right. When Lazarus died, Mary and Martha came to him with faith and love and **besought** him to raise their brother. And Jesus wept and Lazarus came forth. And how came Jesus into the world? Through God who created him and the woman who bore him. Man, where was your part?

11

But the women are coming up, blessed be God, and a few of the men are coming up with them. But man is in a tight place, the poor slave is on him, woman is coming on him, he is surely between a hawk and a **buzzard**.

Vocabulary "Ain't I A Woman" Speech

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* Required

What is your name? *

Your answer

In paragraph 1, what do you think they mean when they use the word kilter? *

Your answer

In paragraph 6, what do you think they mean when they use the word obliged? *

Your answer

In paragraph 7, what do you think they mean when they use the word reaped? *

Your answer

In paragraph 10, what do you think they mean when they use the word spurned?

*

Your answer

In paragraph 10, what do you think they mean when they use the word besought? *

Your answer



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Ain't I A Woman Speech- Quiz

Answer all questions to the best of your ability.

* Required

What is your name? *

Your answer

What do you think the speaker meant when she said, "Where did your Christ come from?" Paragraph 4 *

Your answer

Why do you think there are two versions of this speech? *

Your answer

Refer to two details in the text to support the idea that, in some ways, Sojourner Truth thinks women are actually stronger than men. *

Your answer

Do you think the repetition of the words, "Ain't I a Woman?" make the first account more effective to the reader or audience member than the second account? Why or why not? *

Your answer



Rewrite paragraph 9 in your own words. What is this paragraph talking about? *

Your answer

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Writing- "Ain't I a Woman"

Writing assignment- complete to the best of your ability.

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* Required

What is your name? *

Your answer

Having read these two accounts of this speech, what do you think about women's rights? Should women have equal rights with men? Do you think there are still some inequalities present in today's society? Explain. *

Your answer

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VOCABULARY GOEMETRY

Geometry- is the branch of mathematics that deals with lines, shapes, and space.

Line segment- a part of a line that has two endpoints.

Line- a line that continues forever in both directions.

Ray- a line with only one endpoint.

Point- the name of point using capital letter.

Parallel Lines- lines that are always the same distance apart. They never intersect.

Angle- formed by two rays with the same endpoint.

Vertex- the point of intersection of rays or lines that form an angle.

Right Angle- a 90 degree angle.

Perpendicular Lines- two lines that form a right angle.

Congruent Lengths/Angles- the shapes, lines, or angles are equal in size.

Plane Geometry- 2D flat shapes; polygons; 3 straight sides.

Solid Geometry- deals with solid shapes; 3D shapes; cubes, spheres

Ruler- a tool we measure distances as well as draw straight lines on diagrams.

Protractor- helps us calculate the measurement of an angle, as well as draw an accurate angle

Acute Angle- an angle measuring less than 90 degrees.

Obtuse Angle- An angle measuring greater than 90 degrees.

Complementary Angles- two angles whose "sum" is 90 degrees.

Supplementary Angles- two angles whose "sum" is 180 degrees.

Adjacent Angles- angles that share a vertex and a common side.

Vertical Angles- angles formed by two intersecting lines that are opposite each other. They have equal measures.

Congruent Angles- angles that are related because they have same measure.

Quadrilateral- is a polygon with four sides.

Parallelogram- opposite sides are parallel and equal in length.

Rectangle- a parallelogram where all four sides form right angles.

Rhombus- a parallelogram where all sides are equal in length.

Square- a parallelogram where all sides are equal in length and all sides form right angles.

Trapezoid- has exactly two parallel sides, which are called base1 and base2 sides do not have to be equal in lengths.

Perimeter- the distance around a two-dimensional object. To calculate the perimeter of an object, you add the length of all its sides.

Area- the size of a surface or is the amount of space inside a two-dimensional object. Area is written in "units squared"

Compound Shape- a shape made up of two or more other shapes; made up of quadrilaterals.

Triangle- has 3 sides and 3 angles

Equilateral Triangle- 3 equal sides; 3 equal angles (always equal 60 degrees)

Isosceles Triangle- 2 equal sides and angles

Scalene Triangle- no equal sides; no equal angles.

Hypotenuse- the longest side of a right angled triangle, which is always opposite side with right angle.

Pythagorean Theorem- used to find the length of a side of a right triangle.

Circle- is the set of all points that are equal distance from a point that is called the center.

Circumference © - the distance around the circle. (the perimeter of the circle)

Chord- a line segment whose endpoints are on the circle.

Diameter- a chord that passes through the center of the circle.

Radius- a line segment that has 1 endpoint at the center and other side on the circle.

Space Figure- a solid; 3-D figure; examples: cylinder, cube, sphere, pyramid

Volume- the number of cubic units needed to fill the figure.

Surface Area- is exactly what it sounds like- the area of a shapes surfaces.

We can find surface area by adding together the area of the bases and lateral faces.

Similar Figures- are figures that have the same shape, but not necessarily the same size.

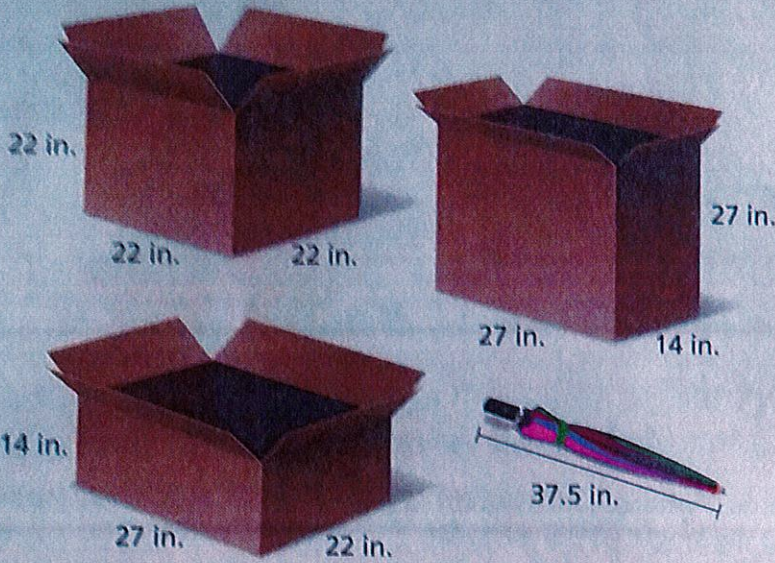
Scale Drawing- is a drawing that is similar to an actual object for place- just made bigger or smaller.

Scale- is ratio of the length in the drawing to the actual length.

Solve & Discuss It!



Carlos is giving his friend in another state a new umbrella as a gift. He wants to ship the umbrella in a box he already has. Which box can Carlos use to ship the umbrella? Explain.



Lesson 7-3

Apply the Pythagorean Theorem to Solve Problems

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I can...

use the Pythagorean Theorem to solve problems.

Common Core Content Standards 8.G.B.7

Mathematical Practices MP.1, MP.2, MP.3, MP.7, MP.8

Make Sense and Persevere

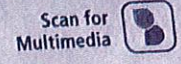
How will the umbrella fit inside any of the boxes? © MP.1

Focus on math practices

Construct Arguments Tim says that the diagonal of any of the boxes will always be longer than the sides. Is Tim correct? Explain. © MP.3

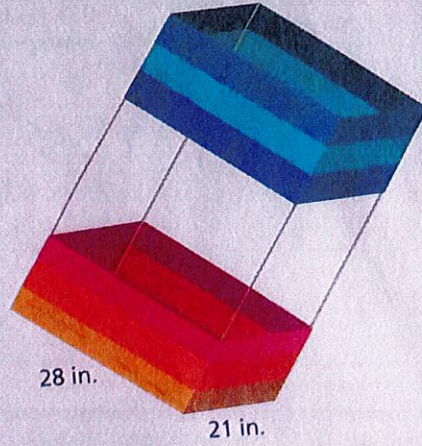
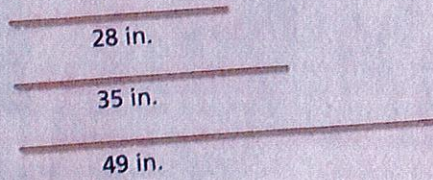
Raquel Wayne

Essential Question What types of problems can be solved using the Pythagorean Theorem?

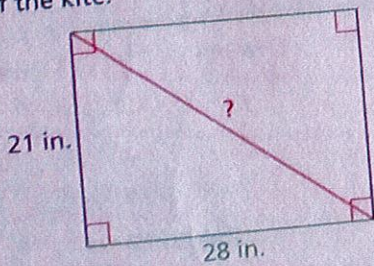


EXAMPLE 1 Apply the Pythagorean Theorem to Solve Problems

Kiana is using a kit to build the kite shown. The kit includes three different lengths of wooden dowels. How can Kiana decide which pieces of wood to use as diagonal braces for the top or bottom of the kite?



Draw a diagram. Use a rectangle to represent the top and bottom of the kite.



Use the Pythagorean Theorem to find the length of the diagonal.

$$a^2 + b^2 = c^2$$

$$21^2 + 28^2 = c^2$$

$$441 + 784 = c^2$$

$$1,225 = c^2$$

$$\sqrt{1,225} = c$$

$$35 = c$$

The length of the diagonal of the rectangle is 35 inches.

So Kiana could use the 35-inch dowel as a brace for the top or bottom of the kite.

Generalize You can use the Pythagorean Theorem to solve problems with squares and rectangles since the corners are always right angles. © MP.8

Try It!

What is the length of the diagonal, d , of a rectangle with length 19 feet and width 17 feet?

Convince Me! If the rectangle were a square, would the process of finding the length of the diagonal change? Explain.

leg² + leg² = hypotenuse²

$19^2 + 17^2 = d^2$

$361 + 289 = d^2$

$650 = d^2$

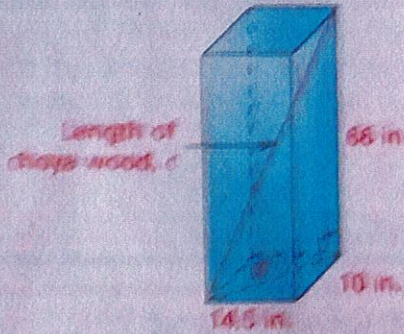
$325 = d$

EXAMPLE 2

Apply the Pythagorean Theorem to Triangles in Three Dimensions

Alex has a column aquarium with a rectangular base that has a height of 66 inches, a length of 10 inches, and a width of 14.5 inches. What is the longest piece of choya wood that Alex can buy to fit in his tank?

STEP 1 Draw and label a diagram to represent the aquarium.



STEP 2 Find the length of the diagonal, d , of the bottom of the tank.

$$10^2 + 14.5^2 = d^2$$

$$100 + 210.25 = d^2$$

$$310.25 = d^2$$

$$17.6 \approx d$$

STEP 3 Use the Pythagorean Theorem to find the length of the choya wood.

$$66^2 + 17.6^2 = c^2$$

$$4,356 + 310.25 = c^2$$

$$4,666.25 = c^2$$

$$68.3 \approx c$$

A piece of choya wood that is about 68.3 inches long is the longest piece of choya wood Alex can buy.

EXAMPLE 3

Apply the Converse of the Pythagorean Theorem to Solve Problems

Sandra bought a triangular shelf to hang in the corner of her room. Will this shelf fit in the 90° corner? Explain.

Use the Converse of the Pythagorean Theorem to determine if the triangle is a right triangle.

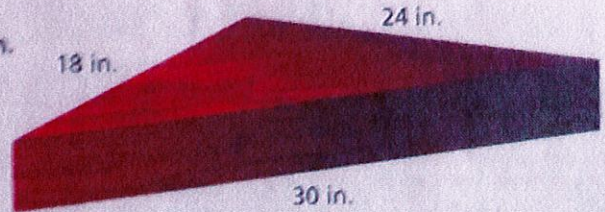
$$a^2 + b^2 = c^2$$

$$18^2 + 24^2 = 30^2$$

$$324 + 576 = 900$$

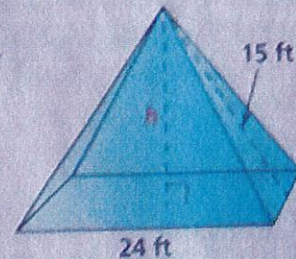
$$900 = 900$$

The shelf is in the shape of a right triangle. It will fit in the corner.



Try It!

A company wants to rent a tent that has a height of at least 10 feet for an outdoor show. Should they rent the tent shown at the right? Explain.

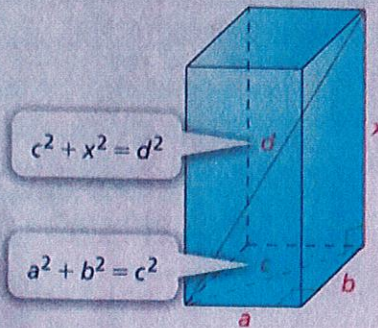


Raquel Wayne

KEY CONCEPT



You can use the Pythagorean Theorem and its converse to solve problems involving right triangles.



Do You Understand?

1. **Essential Question** What types of problems can be solved using the Pythagorean Theorem?

2. **Look for Structure** How is using the Pythagorean Theorem in a rectangular prism similar to using it in a rectangle? **MP.7**

3. **Construct Arguments** Glen found the length of the hypotenuse of a right triangle using $\sqrt{a^2 + b^2}$. Gigi used $\sqrt{(a + b)^2}$. Who is correct? Explain. **MP.3**

Do You Know How?

4. You are painting the roof of a shed. You are going to place the base of a ladder 12 feet from the shed. How long does the ladder need to be to reach the roof of the shed?



5. A box shaped like a right rectangular prism measures 5 centimeters by 3 centimeters by 2 centimeters. What is the length of the interior diagonal of the prism to the nearest hundredth?
6. A wall 12 feet long makes a corner with a wall that is 14 feet long. The other ends of the walls are about 18.44 feet apart. Do the walls form a right angle? Explain.

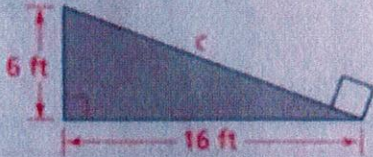
Name: _____

Practice & Problem Solving



Leveled Practice In 7 and 8, use the Pythagorean Theorem to solve.

7. You are going to use an inclined plane to lift a heavy object to the top of a shelving unit with a height of 6 feet. The base of the inclined plane is 16 feet from the shelving unit. What is the length of the inclined plane? Round to the nearest tenth of a foot.



$$a^2 + b^2 = c^2$$

$$\boxed{}^2 + \boxed{}^2 = \boxed{}^2$$

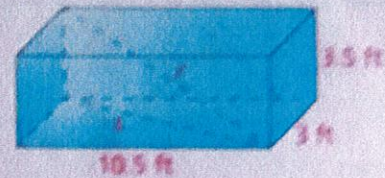
$$\boxed{} + \boxed{} = \boxed{}$$

$$\boxed{} = \boxed{}$$

$$\boxed{} \approx \boxed{}$$

The length of the inclined plane is about feet.

8. Find the missing lengths in the rectangular prism.



$$a^2 + b^2 = c^2$$

$$\boxed{}^2 + \boxed{}^2 = \boxed{}^2$$

$$\boxed{} + \boxed{} = \boxed{}$$

$$\boxed{} = \boxed{}$$

$$\boxed{} \approx \boxed{}$$

$$a^2 + b^2 = c^2$$

$$\boxed{}^2 + \boxed{}^2 = \boxed{}^2$$

$$\boxed{} + \boxed{} = \boxed{}$$

$$\boxed{} = \boxed{}$$

$$\boxed{} \approx \boxed{}$$

9. A stainless steel patio heater is shaped like a square pyramid. The length of one side of the base is 19.8 inches. The slant height is 92.8 inches. What is the height of the heater? Round to the nearest tenth of an inch.

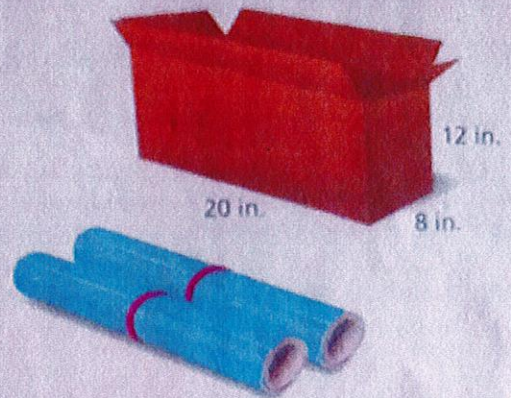
10. **Reasoning** What is the measurement of the longest line segment in a right rectangular prism that is 16 centimeters long, 9 centimeters wide, and 7 centimeters tall? Round to the nearest tenth of a centimeter. **MP2**

11. Felipe is making triangles for a stained glass window. He made the design shown, but wants to change it. Felipe wants to move the purple triangle to the corner. The purple piece has side lengths of 4.5 inches, 6 inches, and 7 inches. Can the purple piece be moved to the corner? Explain.



Raquel Wayne

12. a. What is the longest poster you could fit in the box?
Express your answer to the nearest tenth of an inch.
- b. Explain why you can fit only one maximum-length poster in the box, but you can fit multiple 21.5-inch posters in the same box.



13. The corner of a room where two walls meet the floor should be a right angle. Jeff makes a mark along each wall. One mark is 3 inches from the corner. The other is 4 inches from the corner. How can Jeff use the Pythagorean Theorem to see if the walls form a right angle?

14. **Higher Order Thinking** It is recommended that a ramp have at least 6 feet of horizontal distance for every 1 foot of vertical rise along an incline. The ramp shown has a vertical rise of 2 feet. Does the ramp shown match the recommended specifications? Explain.



© Assessment Practice

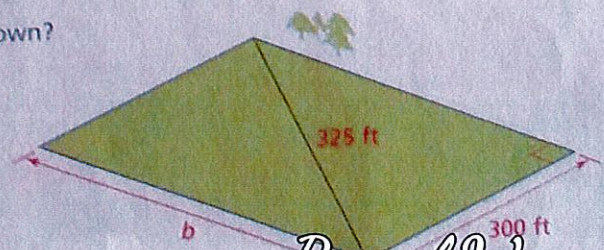
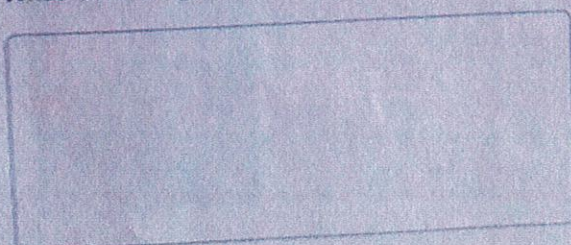
15. A machine in a factory cuts out triangular sheets of metal. Which of the triangles are right triangles? Select all that apply.

- Triangle 1
- Triangle 2
- Triangle 3
- Triangle 4

Triangle Side Lengths

Triangle	Side Lengths (in.)		
1	12	19	$\sqrt{505}$
2	16	19	$\sqrt{467}$
3	14	20	$\sqrt{596}$
4	11	23	$\sqrt{421}$

16. What is the length of the rectangular plot of land shown?



Raquel Wayne
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1.
$$\begin{array}{r} 274 \\ \times 41 \\ \hline \end{array}$$

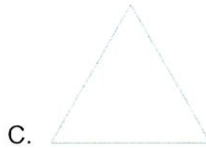
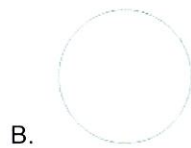
2.
$$\begin{array}{r} 343.47 \\ +112.12 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 415 \\ -110 \\ \hline \end{array}$$

4. Choose the shape that is a square: _____

5. Choose the shape that is a triangle: _____

6. Choose the shape that is a rectangle: _____



7. You are a sales clerk in a coffee shop.
A customer bought a Cafe Mocha that costs \$4.39,
He gives you a ten dollar bill.
How much change do you owe him?

8. You are a sales clerk in a coffee shop.
A customer bought a Frappuccino that costs \$7.79,
He gives you a twenty dollar bill.
How much change do you owe him?

9. 1421
X 221

10. 222
223
+224

Week of May 25#4 Word definition- Metabolism

Metabolism-

Cell-

Cell's metabolism-

Glucose-

Cellular respiration-

ATP-

Photosynthesis-

Metabolic pathway-

Anabolic pathway-

Catabolic pathway-

Enzymes-

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