## Lesson: Pythagorean Theorem

## Lesson Topic: Use Pythagorean theorem to calculate the hypotenuse

Question 1:



What is the length of the hypotenuse?



Question 2:



What is the length of the hypotenuse?



**Question 3:** 



What is the length of the hypotenuse?

in

### **Question 4:**



What is the length of the hypotenuse?

mi

### Question 5:



## What is the length of the hypotenuse?



(Round your answer to the nearest tenth.)

## Lesson Topic: Use Pythagorean theorem to calculate the missing leg

#### **Question 1:**

Use the Pythagorean Theorem to find the missing length and then round the result to the nearest tenth.

*a* = 7, *b* = 11, *c* =

#### **Question 2:**

Use the Pythagorean Theorem to find the missing length and then round the result to the nearest tenth.



#### **Question 3:**

Use the Pythagorean Theorem to find the missing length and then round the result to the nearest tenth.



#### **Question 4:**

Use the Pythagorean Theorem to find the missing length and then round the result to the nearest tenth.



#### Question 5:

Use the Pythagorean Theorem to find the missing length and then round the result to the nearest tenth.

*a* = \_\_\_\_\_, *b* = 5, *c* = 12

## Lesson Topic: Apply the converse of Pythagorean Theorem

### **Question 1:**



Using the information provided above, determine whether the measure of angle x is equal to  $90^{\circ}$  or not. (Note: Diagram is not to scale).

$$\bigcirc \angle x = 90^{\circ}$$

$$\bigcirc \angle x \neq 90^{\circ}$$

#### **Question 2:**



Using the information provided above, determine whether the measure of angle x is equal to  $90^{\circ}$  or not. (Note: Diagram is not to scale).

$$\bigcirc \angle x = 90^{\circ}$$

#### **Question 3:**



Using the information provided above, determine whether the measure of angle x is equal to  $90^{\circ}$  or not. (Note: Diagram is not to scale).

### $\bigcirc$ $\angle x = 90^{\circ}$

#### **Question 4:**

A triangle has a side *a* of length 13, a side *b* of length 24, and a side *c* of length 28. Does the angle between sides *a* and *b* equal 90°?

- The angle between sides a and  $b = 90^{\circ}$ .
- The angle between sides *a* and  $b \neq 90^{\circ}$ .

#### **Question 5:**

The Converse of the Pythagorean Theorem states that:

- If  $a^2 + b^2 = c^2$  for the sides of a triangle, the triangle has a right (90°) angle.
- If  $a^2 + b^2 \neq c^2$  for the sides of a triangle, the triangle has a right (90°) angle.
- If  $a^2 + b^2 = c^2$  for the sides of a triangle, the triangle does not have a right (90°) angle.

## Lesson Topic: Use Pythagorean theorem to find distance between two points

### Question 1:



Use the Pythagorean Equation to find the distance between points x and y.









Use the Pythagorean Equation to find the distance between points *x* and *y*.

○ √15



# Question 3:



Use the Pythagorean Equation to find the distance between points x and y.





° √40



o √48

## **Question 4:**



Use the Pythagorean Equation to find the distance between points *x* and *y*.









Use the Pythagorean Equation to find the distance between points *x* and *y*.

° √74

0	$\sqrt{50}$
0	$\sqrt{65}$
0	$\sqrt{60}$

 $\circ \sqrt{56}$ 

Lesson Topic: Single step real word applications of the Pythagorean Theorem Question 1:



Ted needs to paint a window frame that is 25 feet above the ground. Since there are flowers around his house, the ladder must be 10 feet away from the house. How long does his ladder need to be to reach the window?

- <sup>C</sup>  $\sqrt{625} = 25 \text{ ft}$ <sup>C</sup>  $\sqrt{610} \approx 24.7 \text{ ft}$ <sup>C</sup>  $\sqrt{725} \approx 26.9 \text{ ft}$ <sup>C</sup>  $\sqrt{425} \approx 20.6 \text{ ft}$
- C √525 ≈ 22.9 ft

## **Question 2:**



A contractor finds the perimeter of a park using the right triangle formed by the three surrounding buildings. He knows the length of the department store building to be 610 ft and the length of the bank to be 140 ft. Find the third measurement of the park.

- O √343,500 ≈ 586.1 ft
- √47,700 ≈ 218.4 ft
- C √24,500 ≈ 156.5 ft

○ √391,700 ≈ 625.9 ft

**Question 3:** 



The captain of a boat sees a lighthouse 210 ft tall. Using an instrument, the captain finds that the front of the boat to the top of the lighthouse is 350 ft. What is the distance from the front of the boat to the lighthouse?

- C √15,600 ≈ 124.9 ft
- $^{\circ}$   $\sqrt{78,400} = 280 \text{ ft}$
- $^{\circ}$   $\sqrt{7,396} = 86 \text{ ft}$
- C √46,900 ≈ 216.6 ft
- C √166,600 ≈ 408.2 ft

### **Question 4:**



A contractor finds the perimeter of a park using the right triangle formed by the three surrounding buildings. He knows the length of the apartment building to be 500 ft and the length of the cafe to be 100 ft. Find the third measurement of the park.

○ √90,000 ≈ 300 ft

- ° √15,000 ≈ 122.5 ft
- √240,000 ≈ 489.9 ft

**Question 5:** 



A tent with sides of 3 ft has a rope of 5 ft going from the tent to the tent post. How far away are the posts placed in the ground?

- $^{\circ}$   $\sqrt{19} \approx 4.4 \text{ ft}$
- $^{\circ}$   $\sqrt{13} \approx 3.6 \text{ ft}$
- °  $\sqrt{34}$  ≈ 5.8 ft
- $\sqrt{1} = 1 \text{ ft}$
- $\circ \sqrt{16} = 4 \text{ ft}$

Lesson Topic: Multiple step real word applications of the Pythagorean Theorem Question 1:



What is the length of line segment  $\overline{WZ}$ ?



- ° √252
- ° √65
- ° √144
- ° √272

## Question 2:



What is the length of line segment  $\overline{WZ}$ ?

- ° √910
- ° √758
- ° √484
- √934
- √743

## **Question 3:**



What is the length of line segment  $\overline{\text{WZ}}?$ 





# • = -



What is the length of line segment  $\overline{\text{WZ}}?$ 

- √577
- ° √742
- √537
- ° √433
- ° √289

### **Question 5:**



A woodworker is creating a side for a bench. If the diagonal of the seat is 9 ft, the length of the seat is 8 ft, and the height of the bench's back is 3 ft, how long is the diagonal part of the new side?

- °  $\sqrt{8}$  ≈ 2.8 ft
- °  $\sqrt{23}$  ≈ 4.8 ft
- °  $\sqrt{26}$  ≈ 5.1 ft
- °  $\sqrt{55}$  ≈ 7.4 ft
- °  $\sqrt{154}$  ≈ 12.4 ft