

Name \_\_\_\_\_

Date \_\_\_\_\_

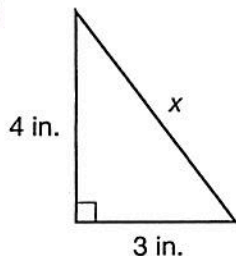
# Pythagorean Theorem Quiz review

CCSS: 8.G.7

## Practice

Directions: For questions 1 through 3, find the value of  $x$ .

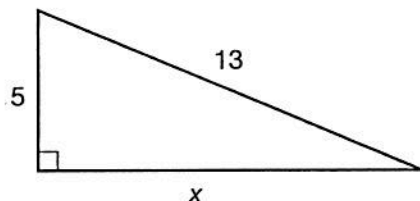
1)



$x =$  \_\_\_\_\_

- 2) A car is driven 80 miles east and then 60 miles south. How far is the car from the starting point?

3)



$x =$  \_\_\_\_\_

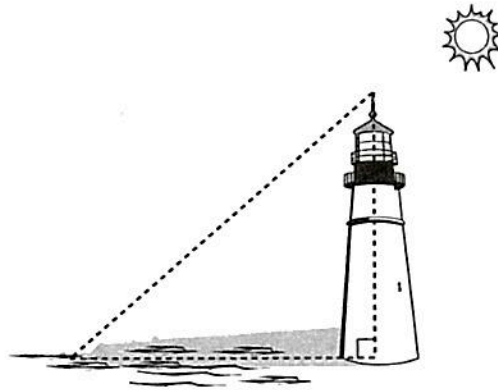
- 4) What is the length of the hypotenuse of a right triangle that has one leg with a length of 9 inches and the other leg with a length of 12 inches?

hypotenuse = \_\_\_\_\_

- 5) If the length of the hypotenuse of a right triangle is 10 feet and one leg measures 6 feet, what is the measure of the other leg?

- A. 4 feet
- B. 7 feet
- C. 8 feet
- D. 14 feet

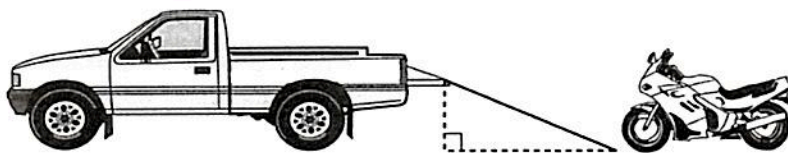
- 6) A lighthouse that is 120 ft tall casts a 160-ft long shadow on the surface of the water. What is the distance from the top of the lighthouse to the end of the shadow?



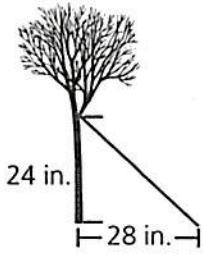
- 7) Toby positioned a 13-ft ladder against the side of his house so he could paint. The distance from the base of the house to the top of the ladder is 12 ft. How far is the base of the ladder from the base of the house?



- 8) Tom built a ramp so that he could drive his motorcycle into the bed of his truck in order to take it to a motorcycle race. The tailgate of his truck is 3 ft from the ground. He made the ramp 5 ft long so it will fit in the bed of the truck. What is the distance from the bottom of the ramp to the point on the ground directly under the edge of the tailgate?



- 9) A wire is tied to the trunk of a tree for support, as shown in this diagram.



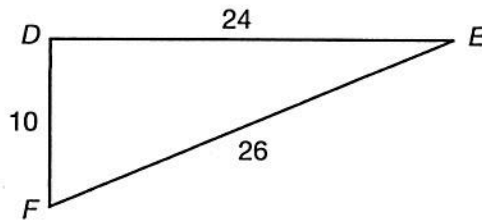
What is the approximate length of the wire?

- A 26 in.                      C 35 in.  
B 32 in.                      D 37 in.

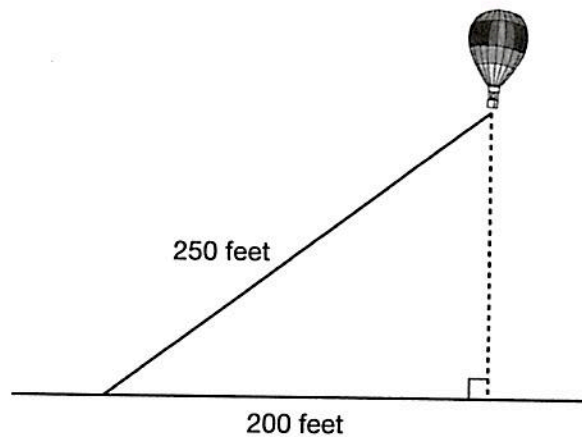
- 10) A rectangular field is 100 m long and 75 m wide. Fay walked diagonally across the field from one corner to the opposite. What distance did Fay walk?

- A 125 m                      C 150 m  
B 135 m                      D 175 m

- 11) Prove that  $\triangle DEF$  is a right triangle using the converse of the Pythagorean theorem.

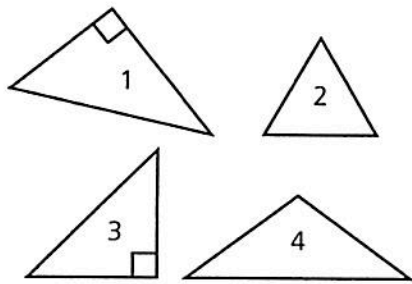


- 12) Ishmael rides in a hot air balloon that is tethered to the ground with a long rope. The length of the rope is 250 feet. The wind blows the balloon so that it forms a right triangle with the ground, as shown below. The balloon floats 200 feet away from the spot where it is tied to the ground.



How high is the balloon floating above the ground?

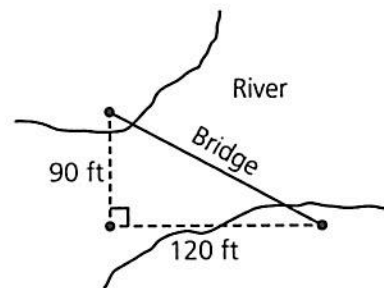
13) Look at these triangles.



For which triangles can the Pythagorean theorem be proved?

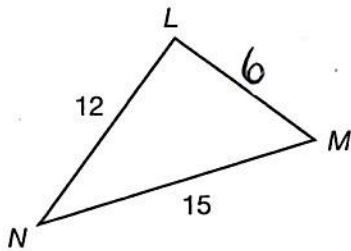
- A 3 only                      C 1, 2, and 3 only  
B 1 and 3 only                D 1, 2, 3, and 4

14) A bridge goes across a river, as shown in this diagram.

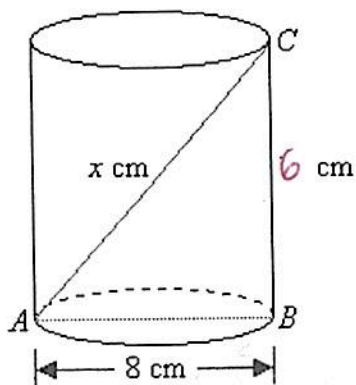


What is the length, in feet, of the bridge?

15) Prove that  $\triangle LMN$  is a right triangle using the converse of the Pythagorean theorem.



16) Find the length of the diagonal labeled  $x$

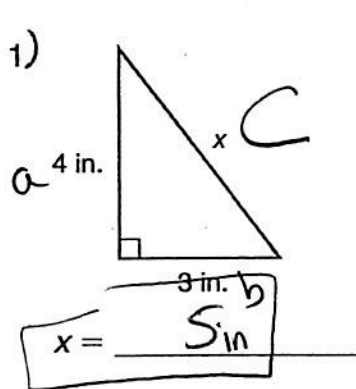




Pythagorean Theorem Quiz review

**Practice**

Directions: For questions 1 through 3, find the value of x.



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

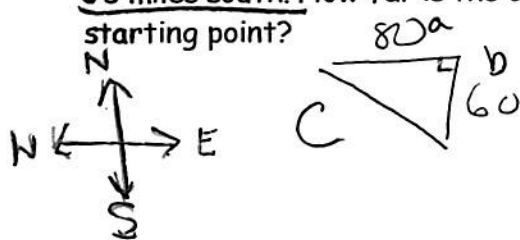
$$4^2 + 3^2 = c^2$$

$$16 + 9 = x^2$$

$$\sqrt{25} = \sqrt{x^2}$$

$$x = 5$$

2) A car is driven 80 miles east and then 60 miles south. How far is the car from the starting point?



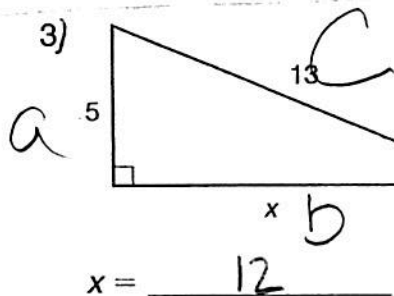
$$a^2 + b^2 = c^2$$

$$80^2 + 60^2 = c^2$$

$$6400 + 3600 = c^2$$

$$\sqrt{10,000} = \sqrt{c^2}$$

$$c = 100 \quad \boxed{100 \text{ mi}}$$



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

$$5^2 + b^2 = 13^2$$

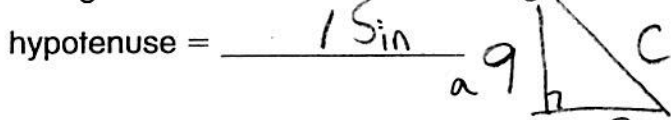
$$25 + b^2 = 169$$

$$\begin{array}{r} 25 + b^2 = 169 \\ -25 \quad -25 \\ \hline b^2 = 144 \end{array}$$

$$\sqrt{b^2} = \sqrt{144}$$

$$b = 12$$

4) What is the length of the hypotenuse of a right triangle that has one leg with a length of 9 inches and the other leg with a length of 12 inches?



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

$$12^2 + 9^2 = c^2$$

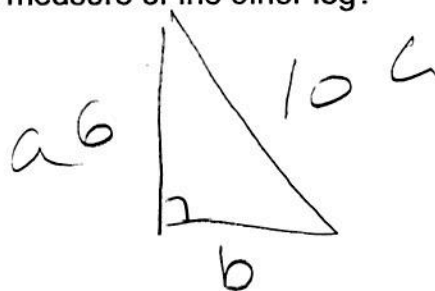
$$144 + 81 = c^2$$

$$\sqrt{225} = \sqrt{c^2}$$

$$c = 15$$

5) If the length of the hypotenuse of a right triangle is 10 feet and one leg measures 6 feet, what is the measure of the other leg?

- A. 4 feet
- B. 7 feet
- C. 8 feet
- D. 14 feet



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

$$6^2 + b^2 = 10^2$$

$$36 + b^2 = 100$$

$$\begin{array}{r} 36 + b^2 = 100 \\ -36 \quad -36 \\ \hline b^2 = 64 \end{array}$$

$$\sqrt{b^2} = \sqrt{64}$$

$$b = 8 \text{ ft}$$

- 6) A lighthouse that is 120 ft tall casts a 160-ft long shadow on the surface of the water. What is the distance from the top of the lighthouse to the end of the shadow?

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

$$120^2 + 160^2 = c^2$$

$$14,400 + 25,600 = c^2$$

$$\sqrt{40,000} = \sqrt{c^2}$$

$$c = 200$$

200 ft

- 7) Toby positioned a 13-ft ladder against the side of his house so he could paint. The distance from the base of the house to the top of the ladder is 12 ft. How far is the base of the ladder from the base of the house?

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

$$c^2 = 12^2 + b^2 = 13^2$$

$$144 + b^2 = 169$$

$$\begin{array}{r} -144 \\ \hline b^2 = 25 \\ b = 5 \end{array}$$

5 ft

- 8) Tom built a ramp so that he could drive his motorcycle into the bed of his truck in order to take it to a motorcycle race. The tailgate of his truck is 3 ft from the ground. He made the ramp 5 ft long so it will fit in the bed of the truck. What is the distance from the bottom of the ramp to the point on the ground directly under the edge of the tailgate?

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

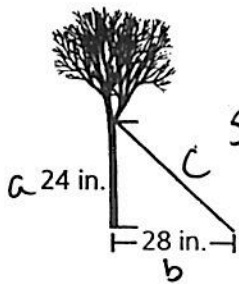
$$3^2 + b^2 = 5^2$$

$$9 + b^2 = 25$$

$$\begin{array}{r} -9 \\ \hline b^2 = 16 \\ b = 4 \end{array}$$

4 ft

- 9) A wire is tied to the trunk of a tree for support, as shown in this diagram.



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

$$24^2 + 28^2 = c^2$$

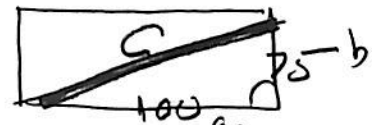
$$576 + 784 = c^2$$

$$\sqrt{1360} = \sqrt{c^2}$$

$$c = 36.8\dots$$

What is the approximate length of the wire?

- A 26 in.                      C 35 in.  
 B 32 in.                      D 37 in.



- 10) A rectangular field is 100 m long and 75 m wide. Fay walked diagonally across the field from one corner to the opposite. What distance did Fay walk?

- A 125 m                      S 150 m  
 B 135 m                      D 175 m

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

$$100^2 + 75^2 = c^2$$

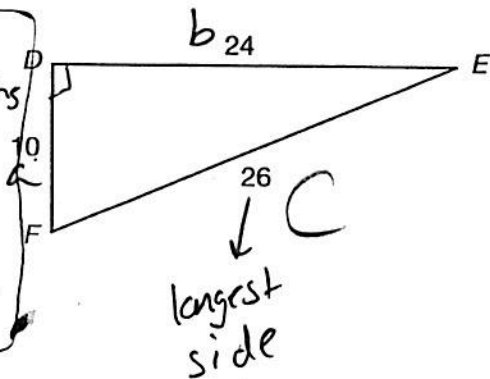
$$10,000 + 5,625 = c^2$$

$$\sqrt{15,625} = \sqrt{c^2}$$

$$c = 125\text{m}$$

- 11) Prove that  $\triangle DEF$  is a right triangle using the converse of the Pythagorean theorem.

Yes! It is a right triangle b/c the lengths of the sides of the triangle satisfy the Pythagorean Theorem



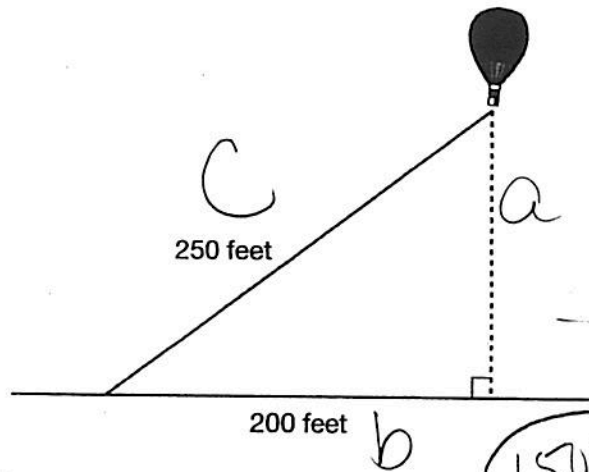
$$a^2 + b^2 = c^2$$

$$10^2 + 24^2 = 26^2$$

$$\underline{100 + 576 = 676}$$

$$676 = 676$$

- 12) Ishmael rides in a hot air balloon that is tethered to the ground with a long rope. The length of the rope is 250 feet. The wind blows the balloon so that it forms a right triangle with the ground, as shown below. The balloon floats 200 feet away from the spot where it is tied to the ground.



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

$$a^2 + 200^2 = 250^2$$

$$a^2 + 40,000 = 62,500$$

$$\underline{-40,000 \quad -40,000}$$

$$\sqrt{a^2} = \sqrt{22,500}$$

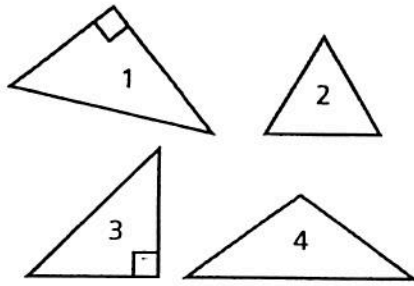
$$a = 150\text{ft}$$

How high is the balloon floating above the ground?

150ft



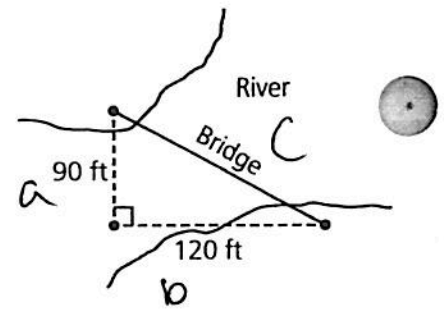
3) Look at these triangles.



For which triangles can the Pythagorean theorem be proved?

- A 3 only      C 1, 2, and 3 only  
 B 1 and 3 only      D 1, 2, 3, and 4

4) A bridge goes across a river, as shown in this diagram.



What is the length, in feet, of the bridge?

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

$$90^2 + 120^2 = c^2$$

$$8100 + 14400 = c^2$$

$$\sqrt{22500} = \sqrt{c^2}$$

$$c = 150$$

150ft

5) Prove that  $\triangle LMN$  is a right triangle using the converse of the Pythagorean theorem.

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

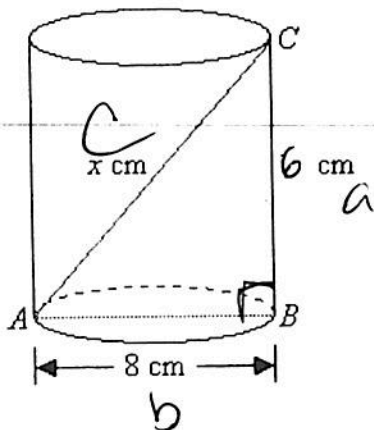
$$6^2 + 12^2 = 15^2$$

$$36 + 144 = 225$$

$$180 \neq 225$$

NO! It is NOT a right triangle, b/c the lengths of the sides of the triangle DO NOT satisfy the pythagorean theorem

6) Find the length of the diagonal labeled x



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

$$6^2 + 8^2 = c^2$$

$$36 + 64 = c^2$$

$$\sqrt{100} = \sqrt{c^2}$$

$$c = 10 \quad \boxed{10 \text{ cm}}$$