TEST NAME: **G.7**
TEST ID: **877132**
GRADE: **08 - Eighth Grade**
SUBJECT: **Mathematics**
TEST CATEGORY: **School Assessment**

Student: _____

Class: _____

Date: _____

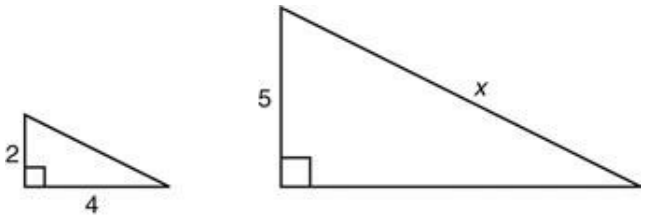
1. Mr. Lopez has a rectangular classroom that measures 36 feet by 28 feet. What is the ***approximate*** diagonal measurement of the room?

   A. 23 feet

   B. 44 feet

   C. 46 feet

2. **Given that these two right triangles are similar, what is the value of *x*?**



   A. $3\sqrt{5}$

   B. 7

   C. 10

   D. $5\sqrt{5}$

3. **Which set of lengths might be used to represent the sides of a right triangle?**

   A. 6, 7, 10

   B. 7, 15, 17

   C. 9, 12, 16

   D. 7, 24, 25

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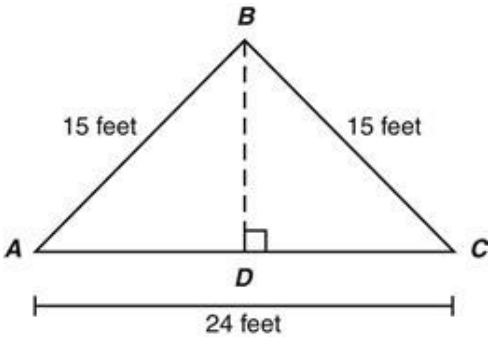
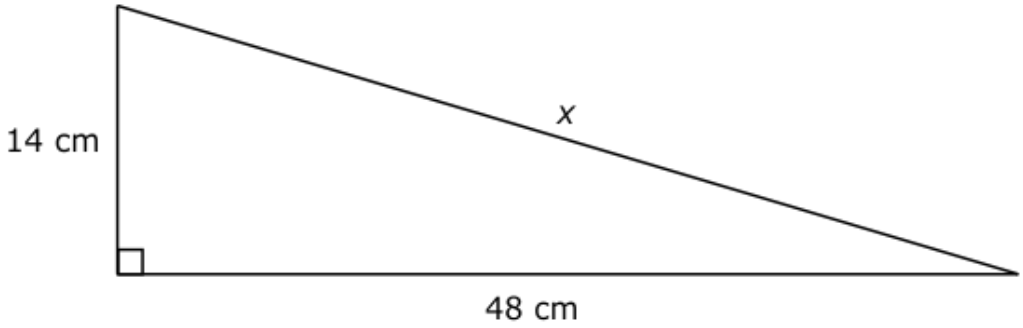
4. **A camp tent entrance is shown below.**



If $AB = BC = 15$ feet and $AC = 24$ feet, what is, $\overline{BD}$, the height of the camp tent entrance?

A. 3 feet
B. 9 feet
C. 12 feet
D. 15 feet

5. What is the length of the hypotenuse, *x*, in the right triangle below?



A. 46 cm
B. 50 cm
C. 62 cm

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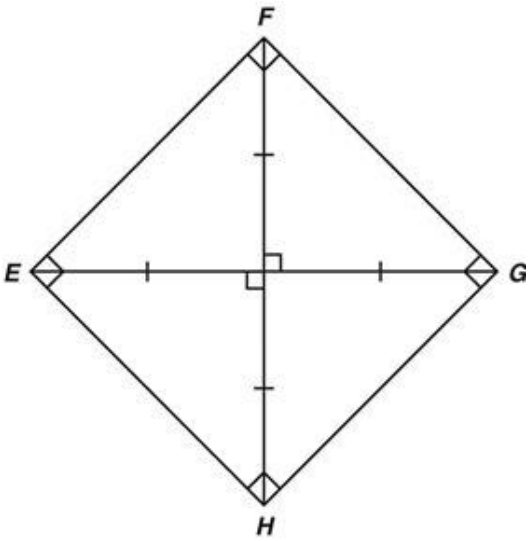
6. **Connie and her friends are building a square kite as shown below.**

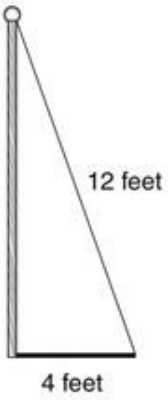


If $FH = 60$ centimeters and $EG = 60$ centimeters, what is the approximate length, in centimeters, of $\overline{EF}$?

A. 11
B. 30
C. 42
D. 85

7. **A 12-foot support wire is attached to the top of a pole as shown. The wire is anchored in the ground 4 feet from the pole.**

Anchored Wire from Post



Which equation can be used to find *y*, the height of the pole, in feet?

A. $y = 12 + 4$
B. $12 = y + 4$
C. $y^2 = 12^2 + 4^2$
D. $12^2 = y^2 + 4^2$

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8. **A triangle has sides that measure 5 units, 12 units, and 13 units. Is this triangle a right triangle?**

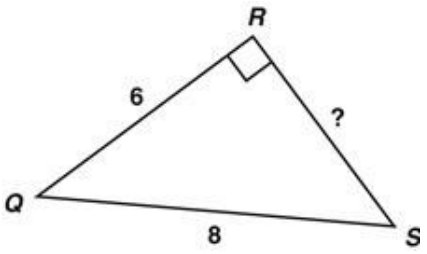
A. No, it is not a right triangle because $5^2 + 12^2 = 13^2$.

B. No, it is not a right triangle because $5^2 + 12^2 \neq 13^2$.

C. Yes, it is a right triangle because $5^2 + 12^2 \neq 13^2$.

D. Yes, it is a right triangle because $5^2 + 12^2 = 13^2$.

9. **Triangle *QRS* is a right triangle.**



What is the length of $\overline{RS}$?

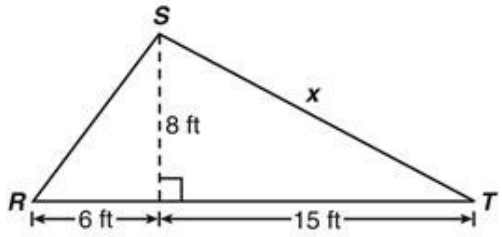
A. $\sqrt{28}$ units

B. $\sqrt{48}$ units

C. 7 units

D. 10 units

10. **In $\triangle RST$, what is *x*?**



Note: Figure is not drawn to scale.

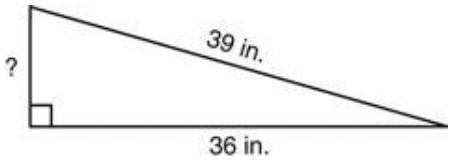
A. $\sqrt{28}$ feet

B. 10 feet

C. $\sqrt{161}$ feet

D. 17 feet

11. **The figure below shows a 39-inch ramp that is attached to a deck.**



How high is the deck if the base of the ramp is 36 inches from the deck?

A. 15 inches
B. 9 inches
C. 8.7 inches
D. 3 inches

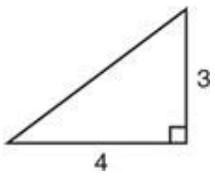
12. The size of a rectangular television screen is described by the length of its diagonal, rounded to the nearest whole number. If the height of a television is 18 inches and the width is 32 inches, what is the length of the television's diagonal, to the nearest inch?

A. 14
B. 25
C. 37
D. 50

13. **The lengths of the legs of a right triangle are 8 yards and 15 yards. What is the length, in yards, of the third side of the triangle?**

A. 23
B. 17
C. 12.7
D. 11.5

14. **What is the length of the hypotenuse of the triangle below?**



A. 5
B. 7
C. 12
D. 25

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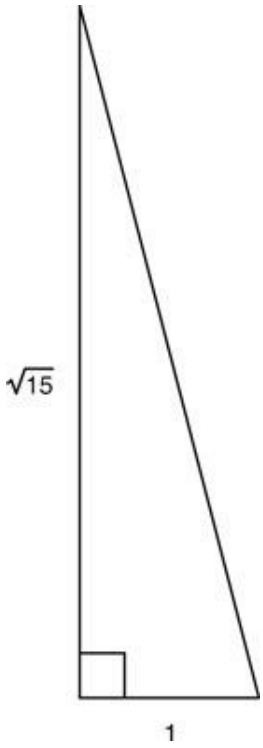
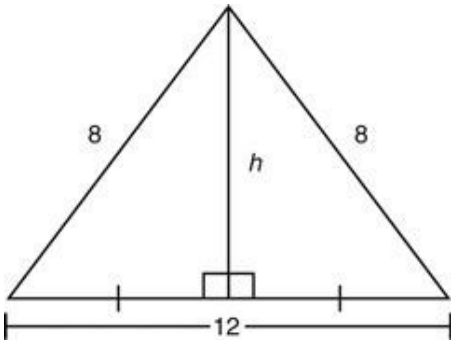
15. **What is the perimeter of the triangle shown?**



A. $\sqrt{15}$ units
B. $1 + \sqrt{15}$ units
C. $4 + \sqrt{15}$ units
D. $5 + \sqrt{15}$ units

16. **What is the height, *h*, of the isosceles triangle?**



A. $2\sqrt{7}$
B. 10
C. 14
D. $4\sqrt{5}$

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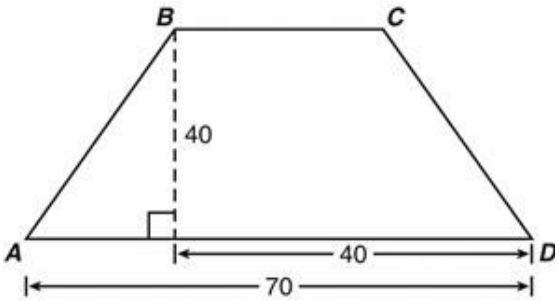
17. **Trapezoid *ABCD* is shown.**



What is the length of $\overline{AB}$?

A. 30
B. 40
C. 50
D. 70

18. A 90-foot wire runs from the top of a cell phone tower to the ground 63 feet from the base of the tower. ***Approximately*** how tall is the cell phone tower?

A. 27 feet
B. 64 feet
C. 77 feet
D. 110 feet

19. **Rosemary is cutting 3 wooden sticks to build part of a kite frame. The part she is building must be a right triangle. Which choice below could be the lengths, in inches, of the sticks Rosemary cut?**

A. 6, 8, 10
B. 5, 6, 7
C. 2, 3, 5
D. 2, 5, 10

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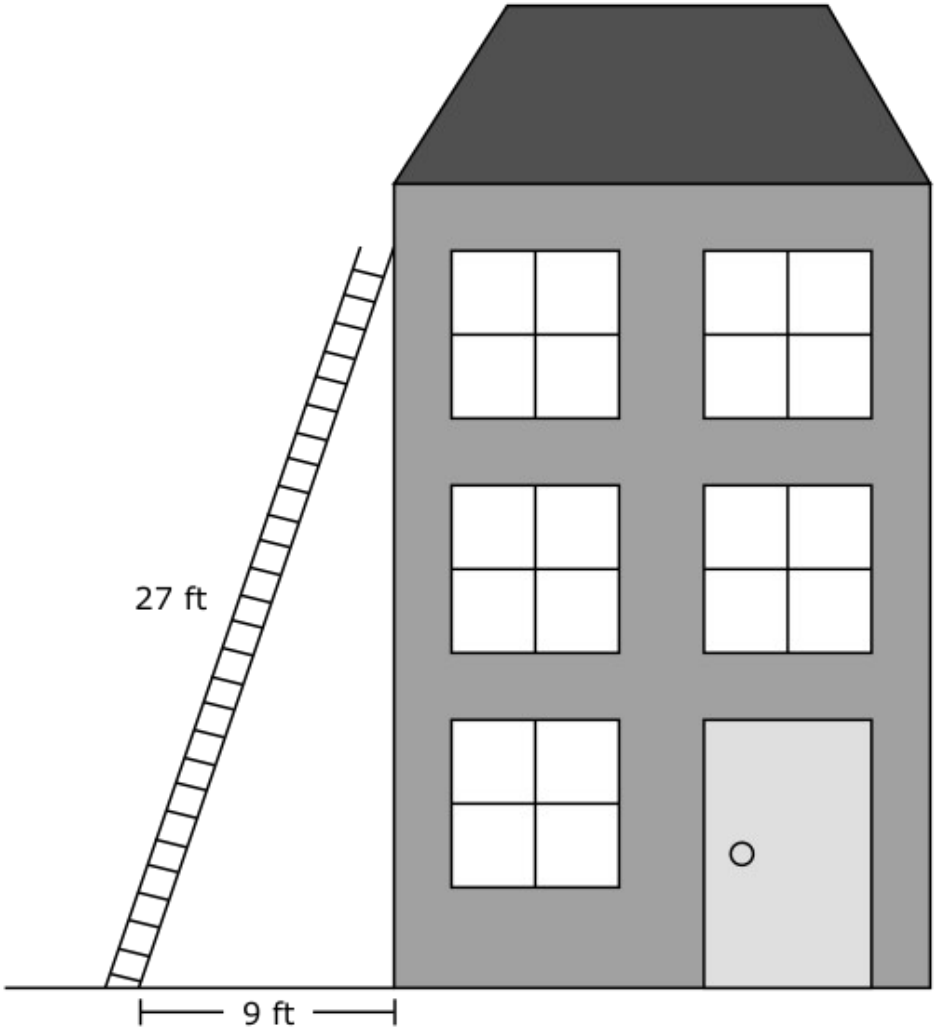
20. A ladder is leaning against a house as shown below.



About how high up the house does the ladder reach?

A. 18 ft

B. 25 ft

C. 28 ft

21. The legs of a right triangle measure 4 inches and 7 inches. What is the ***approximate*** length of the hypotenuse?

A. 8 inches

B. 10 inches

C. 11 inches

D. 14 inches

22. **A right triangle has legs 48 inches and 55 inches long. What is the length of the hypotenuse in inches?**

A. 27
B. 51
C. 73
D. 103

23. **If the two legs of a right triangle measure 5 inches and 9 inches, what is the length of the hypotenuse?**

A. 7 inches
B. $\sqrt{106}$ inches
C. $\sqrt{196}$ inches
D. 106 inches

24. **Use a ruler and protractor to construct a rectangle with sides of length 5 and 12 centimeters. Which is the length of the diagonal?**

A. 7 cm
B. 8.5 cm
C. 13 cm
D. 17 cm

25. A boat starts in Riverton and sails 5 miles North. Then, the boat sails East another 3 miles, forming a right angle. What is the ***approximate*** shortest distance back to Riverton?

A. 2 miles

B. 4 miles

C. 6 miles

D. 8 miles

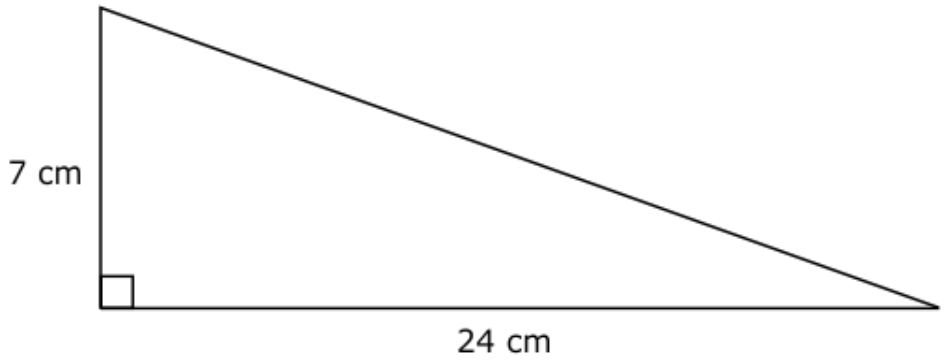
26. **Leo placed a ladder against the back of his store building to paint a sign. The top of the ladder was 9 feet above the ground and the bottom of the ladder was 3 feet from the base of the building. What is the length, to the nearest tenth of a foot, of the ladder?**

A. 8.5 feet
B. 9.5 feet
C. 12.0 feet
D. 13.5 feet

27. The width of a rectangular swimming pool is 16 ft. The diagonal of the swimming pool is 34 ft. What is the length of the swimming pool?

A. 22 ft
B. 25 ft
C. 30 ft
D. 38 ft

28. A right triangle is shown below.



What is the length of the hypotenuse of the triangle?

A. 41 cm
B. 31 cm
C. 25 cm

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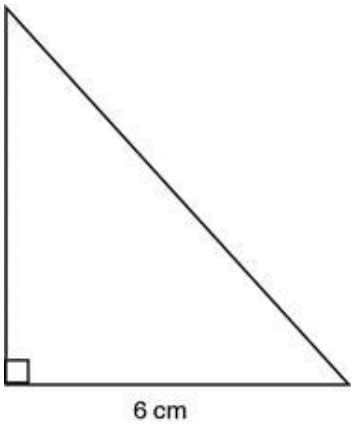
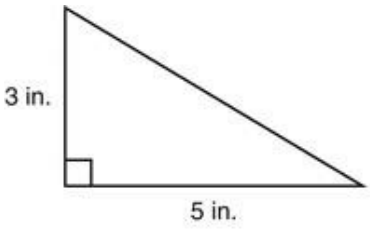
29. **The area of the triangle shown below is 24 square centimeters.**



Which of the following is the hypotenuse of this triangle?

A. 6 cm
B. 8 cm
C. 10 cm
D. 24 cm

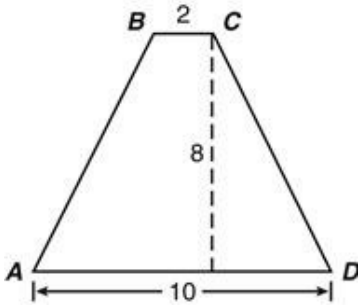
30. **What is the length of the hypotenuse in the right triangle below?**



Note: The figure is not drawn to scale.

A. less than 5 inches
B. between 5 and 6 inches
C. between 6 and 7 inches
D. more than 7 inches

31. **The figure shown below is an isosceles trapezoid with an altitude of 8.**



What is the length of $\overline{AB}$?

A. $2\sqrt{17}$

B. $4\sqrt{3}$

C. $4\sqrt{5}$

D. $8\sqrt{2}$

32. **Which is true regarding the Pythagorean Theorem?**

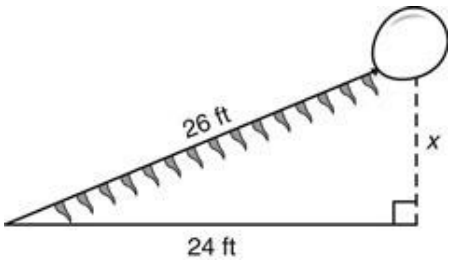
A. The sum of the squares of the legs equals the square of the hypotenuse.

B. The sum of the squares of the hypotenuses equals the square of the leg.

C. The sum of the legs equals the hypotenuse.

D. The sum of the hypotenuses equals the leg.

33. **A balloon that is tied to a stake in the ground is being blown sideways by the wind. The length of the string from the stake to the balloon is 26 feet, and the distance from the stake to a point directly under the balloon is 24 feet.**



If *x* is the distance in feet from the balloon to the ground, what is the value of *x*?

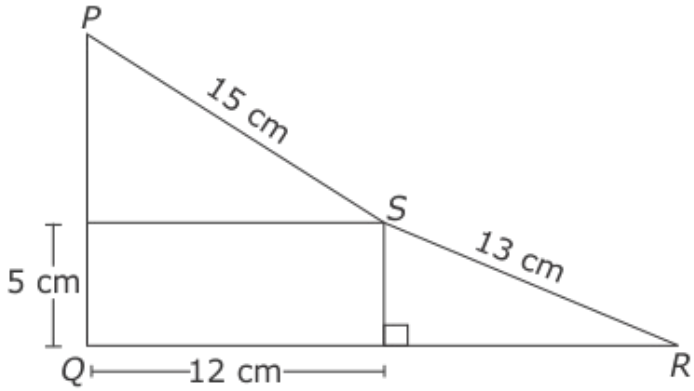
A. 2

B. 4

C. 10

D. 25

34. Figure *PQRS* below is made up of a rectangle and two right triangles.



What is the perimeter of figure *PQRS*?

A. 78 cm

B. 66 cm

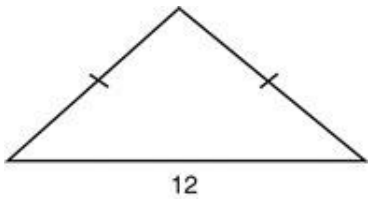
C. 62 cm

D. 45 cm

35. **Given the length of each of the legs of a right triangle, which mathematical operation is not required to solve for the length of the hypotenuse?**

A. addition
B. cube root
C. square root
D. multiplication

36. **The area of this triangle is 12 square units.**



What is the perimeter of the triangle?

A. 12 units

B. $2\sqrt{37} + 12$ units

C. $4\sqrt{10} + 12$ units

D. 36 units

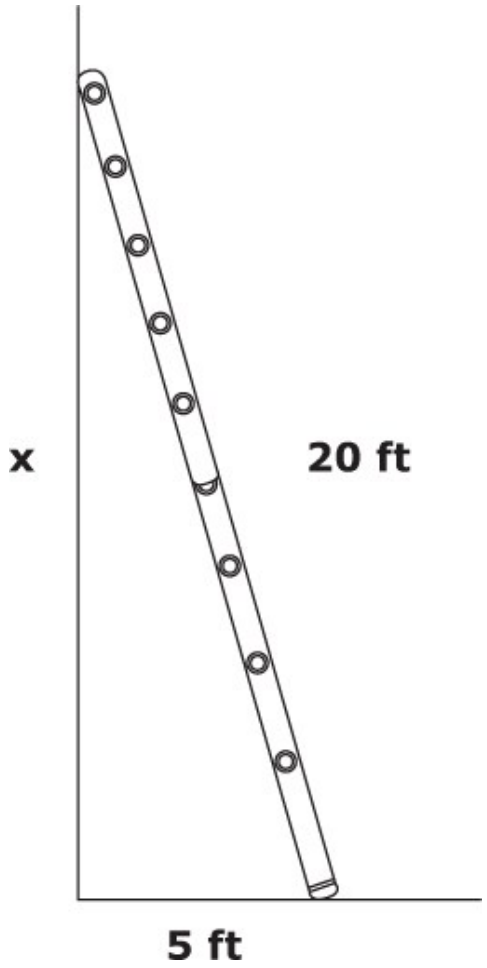
37. **The lengths of the legs of a right triangle are 9 feet and 12 feet. What is the length, in feet, of the third side of the triangle?**

A. 21
B. 15
C. 10.5
D. 7.9

38. A rectangular television screen has a diagonal measurement of 52 inches and a width of 32 inches. What is the ***approximate*** length of the television screen?

A. 22 inches
B. 41 inches
C. 42 inches
D. 61 inches

39. A 20-foot (ft) ladder is leaning against a building, as shown.



At what height, *x*, does the ladder touch the wall?

A. $\sqrt{15}$ ft

B. $\sqrt{375}$ ft

C. $\sqrt{395}$ ft

D. $\sqrt{425}$ ft

40. Carmen leaned a 13-foot ladder against a wall. If the base of the ladder is 4 feet from the bottom of the wall, approximately how far up the wall does the ladder reach?

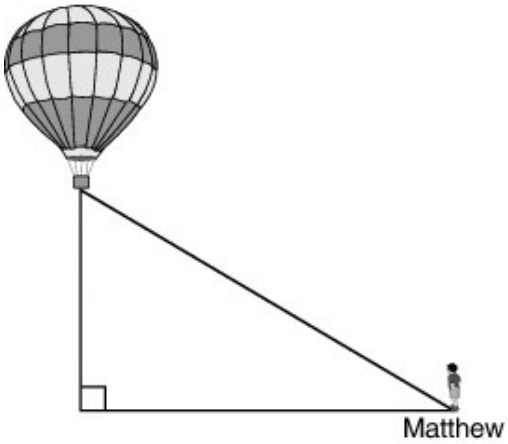
A. 9.0 feet

B. 12.4 feet

C. 13.6 feet

D. 17.0 feet

41. Martha is in a hot air balloon that has risen straight up from the launch point. Matthew is standing on the ground, 16 meters away from the launch point. If Martha and Matthew are 20 meters apart, how high has the balloon risen?



A. 4 meters

B. 12 meters

C. 36 meters

D. 144 meters

42. **The length of the hypotenuse of a right triangle is 2.0 feet. The length of one of the legs of this triangle is 1.2 feet. What is the length of the other leg of the right triangle?**

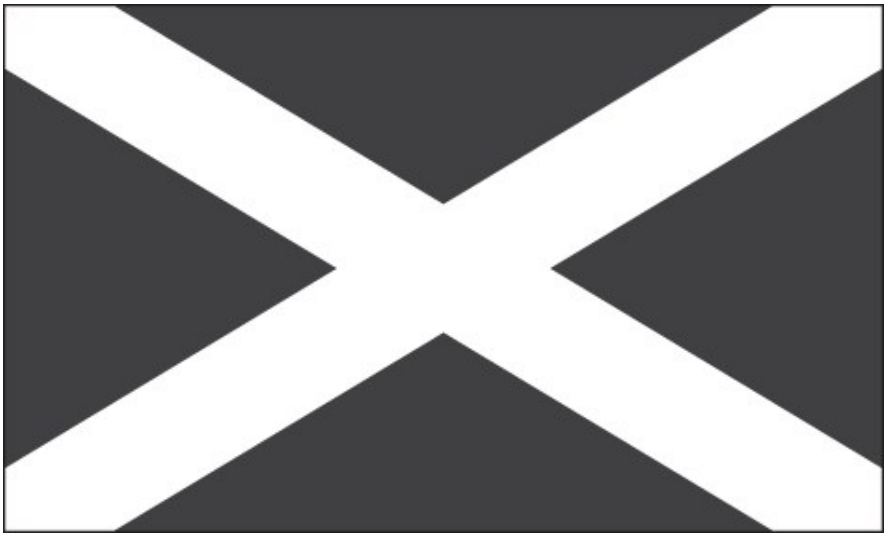
A. 0.8 ft

B. 1.6 ft

C. 2.3 ft

D. 3.2 ft

43. The national flag of Scotland has a white diagonal cross on a blue background.



Tracy is sewing a Scottish flag. She knows that the length of one diagonal will be 15 feet, and the flag will be 9 feet high. To the nearest foot, how long will Tracy's flag be?

A. 9

B. 12

C. 17

D. 24

44. **The length of the hypotenuse of a right triangle is 14.5 meters. The length of one of the legs is 8.7 meters. What is the length of the other leg of the triangle?**

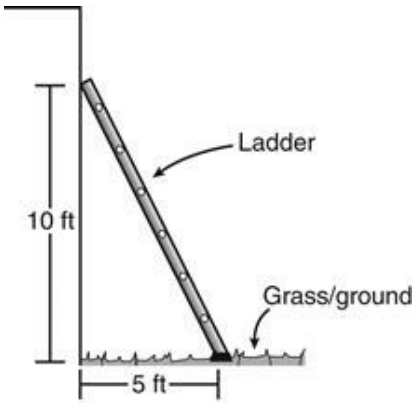
A. 5.8 m

B. 11.6 m

C. 16.9 m

D. 23.2 m

45. **A ladder is leaning against a building. The base of the ladder is 5 feet from the building, and the top of the ladder reaches 10 feet high on the building.**



What is the length of the ladder, rounded to the nearest foot?

A. 9 feet
B. 11 feet
C. 13 feet
D. 15 feet

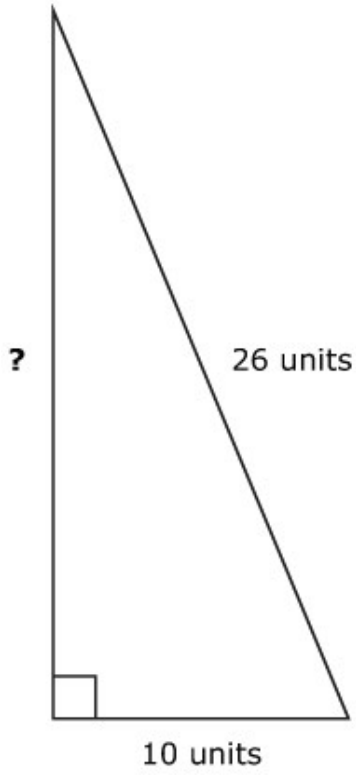
46. Walltown is 25 miles east of Park City.

- Park City is 38 miles south of Edenton.
- Michael drove from Edenton to Park City, and then to Walltown.
- Leah drove straight from Edenton to Walltown.

About how much farther did Michael drive than Leah?

A. 17.5 miles
B. 25 miles
C. 34 miles
D. 45.5 miles

47. The diagram shows a right triangle with the length of one side missing.



Which measure is the value of the missing side length?

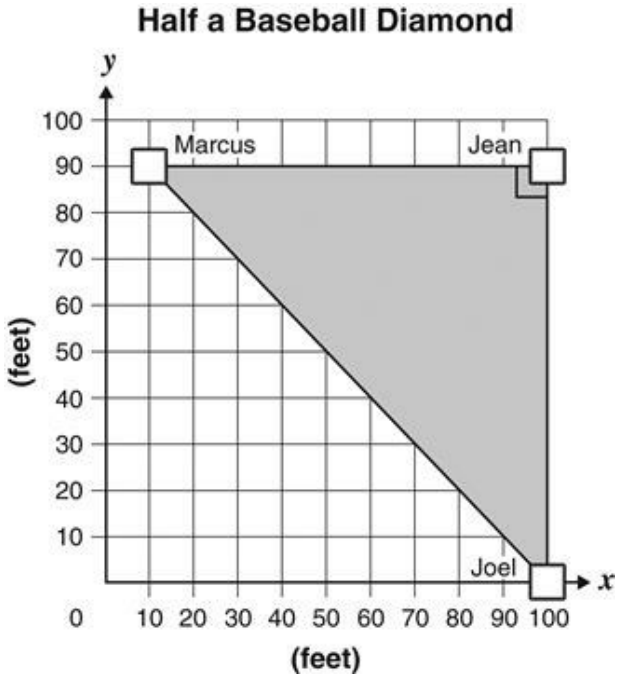
A. 16 units

B. 24 units

C. 28 units

D. 36 units

48. **Marcus, Jean, and Joel are standing on the bases of a baseball field as shown below.**



The line segments that connect 2nd base to 1st base and 2nd base to 3rd base form a right angle. Marcus is on 3rd base and he is 90 feet from Jean who is on 2nd base. Jean is 90 feet from Joel who is on 1st base. How far, in feet, is Marcus from Joel?

A. 45
B. 90
C. $90\sqrt{2}$
D. $90\sqrt{3}$

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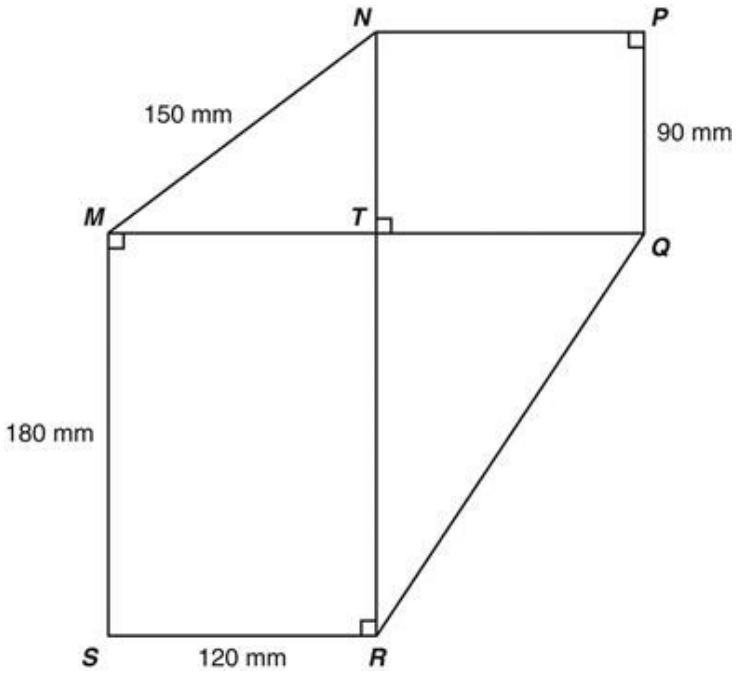
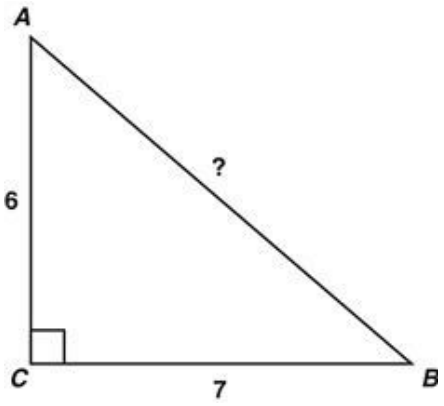
49. **In the figure below, Rectangles *MSRT* and *NPQT* are similar. The measures shown are in millimeters.**



What is the length of $\overline{QR}$?

A. 180 millimeters
B. 200 millimeters
C. 225 millimeters
D. 300 millimeters

50. **If $\triangle ABC$ is a right triangle, what is the length, in units of $\overline{AB}$?**



A. 13
B. $\sqrt{13}$
C. $\sqrt{85}$
D. 85

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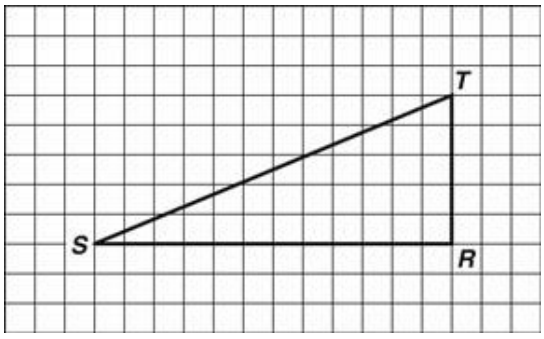
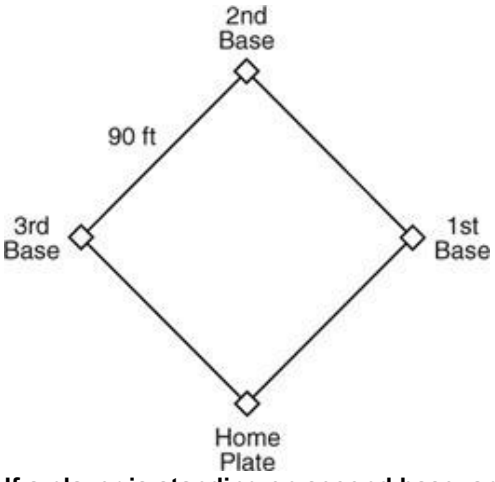
51. **What is the length, in units, of $\overline{ST}$?**



A. 7
B. 12
C. 13
D. 17

52. **A baseball diamond is a square with sides of 90 feet.**



If a player is standing on second base, approximately how far would he have to throw the ball to reach home plate?

A. 127 feet
B. 135 feet
C. 155 feet
D. 180 feet

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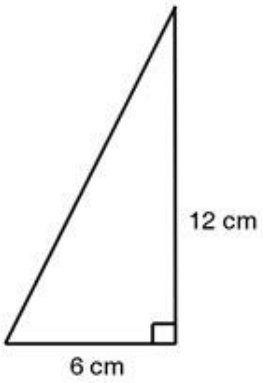
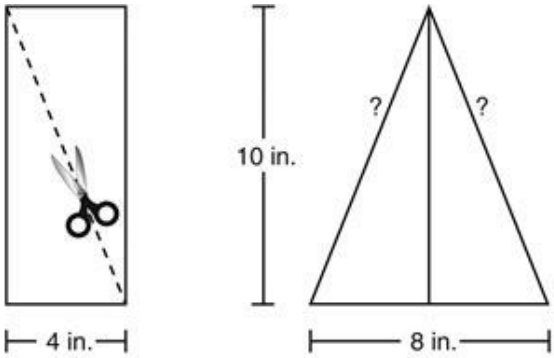
53. **The legs of a right triangle are 6 centimeters and 12 centimeters long.**



Which number is closest to the measure of the hypotenuse in centimeters?

A. 6
B. 13
C. 18
D. 72

54. **Erin has a rectangular sheet of paper that measures 8 inches by 10 inches. She folds the sheet in half length-wise and then cuts to form a triangle as shown.**



Folded Paper **Unfolded Paper**

Which is closest to the length of each longest side of the cut triangle?

A. 5.2 inches
B. 6.0 inches
C. 10.8 inches
D. 12.8 inches

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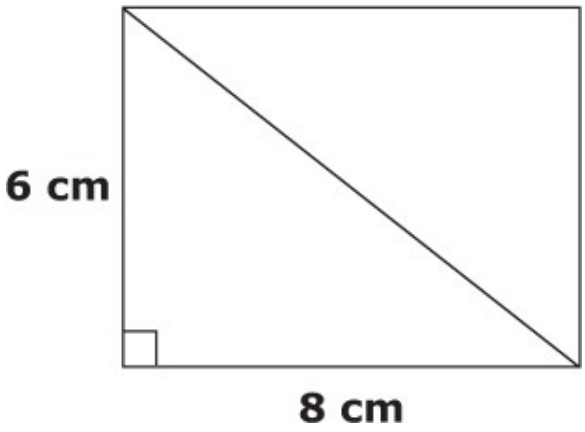
55. A rectangle is shown.



What is the length of the diagonal of the rectangle in centimeters (cm)?

A. 10

B. 14

C. 64

D. 100

56. The side lengths of a square are 16 cm each. What is the ***approximate*** length of the diagonal of the square?

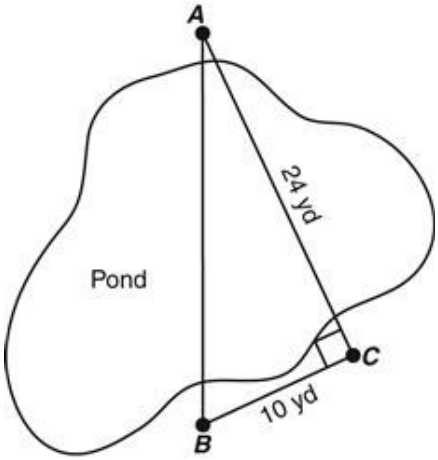
A. 17 cm

B. 23 cm

C. 24 cm

D. 32 cm

57. **The diagram shows where Camille, Anthony, and Bobby are standing. Camille is at Point *C*. Anthony is across the pond at Point *A*, and Bobby is at Point *B*.**



What is the distance between Anthony and Bobby?

A. 22 yards
B. 26 yards
C. 34 yards
D. 68 yards

58. **Which of the following could be the lengths of the sides of a right triangle?**

A. 5.1 cm, 3.4 cm, 8.5 cm
B. 5.1 cm, 6.8 cm, 8.5 cm
C. 5.1 cm, 8.5 cm, 8.5 cm
D. 5.1 cm, 6.8 cm, 10.2 cm

59. **Tim and Sasha are making a model sailboat. They want the sail to be in the shape of a right triangle. If the legs of the sail measure 8 and 15 inches, what would be the length of the hypotenuse?**

A. 13 in.
B. 15 in.
C. 17 in.
D. 23 in.

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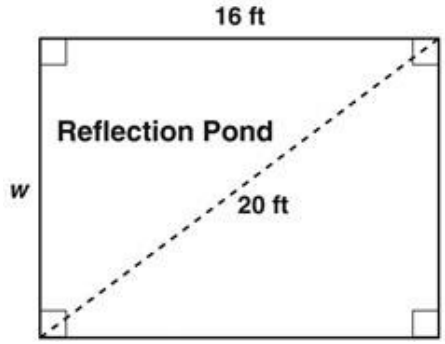
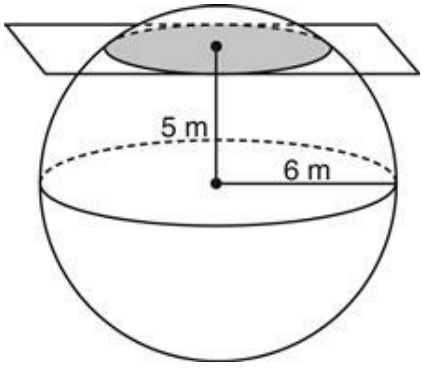
60. **A rectangular reflection pond in a park is 16 feet long. The maintenance crew placed a string of flags 20 feet long across the pond diagonally, as shown below.**



What is the width (*w*) of the pond, in feet?

A. 4
B. 12
C. 26
D. 144

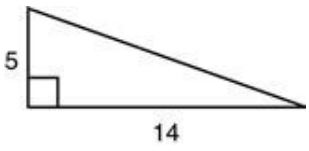
61. **A plane intersects a sphere 5 meters from the center of the sphere.**



If the radius of the sphere is 6 meters, what is the area in square meters of the circle formed by the intersection of the plane and sphere?

A. 11π
B. 25π
C. 36π
D. 121π

62. **What is the length of the hypotenuse on the following right triangle?**



A. $\sqrt{19}$
B. $\sqrt{70}$
C. $\sqrt{171}$
D. $\sqrt{221}$

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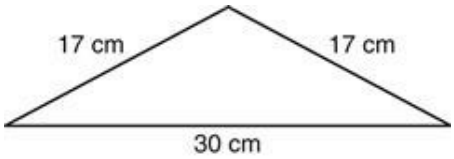
63. **An isosceles triangle is shown.**



What is the area of this isosceles triangle in square centimeters?

A. 64
B. 120
C. 240
D. 255

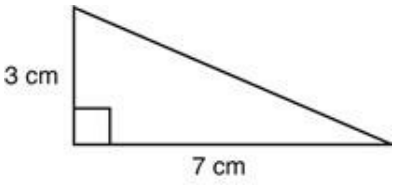
64. **The lengths of the legs of a right triangle are consecutive even integers. The hypotenuse is 58 inches. What is the sum of the lengths of the legs in inches?**

A. 82
B. 98
C. 100
D. 140

65. A square checkerboard has four sides that are each 15 inches long. ***About*** how far will a checker travel if it starts in one corner of the board and travels diagonally to the opposite corner of the board?

A. 30 inches
B. 25 inches
C. 20 inches
D. 15 inches

66. **What is the length of the hypotenuse of the triangle below?**



A. $2\sqrt{10}$
B. $\sqrt{58}$
C. 10
D. 58

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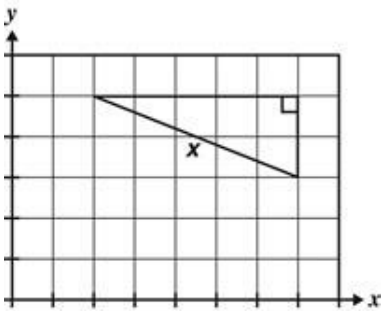
67. **A landscape designer sketches the outline of a triangular garden on a grid, as shown below.**



Each unit on the grid represents one foot. What is the length, to the nearest tenth of a foot, of side *x* of the triangular garden?

A. 3.5 feet
B. 5.0 feet
C. 5.4 feet
D. 12.0 feet

68. **Niki is decorating a rectangular dining table for a party. The length of the table is 8 feet and the width is 6 feet. Niki put a ribbon diagonally across the table. What is the length of the ribbon, in feet?**

A. 2
B. 4
C. 10
D. 14

69. **The lengths of the legs of a right triangle are 6 yards and 8 yards. What is the length, in yards, of the third side of the triangle?**

A. 5
B. 7
C. 10
D. 14

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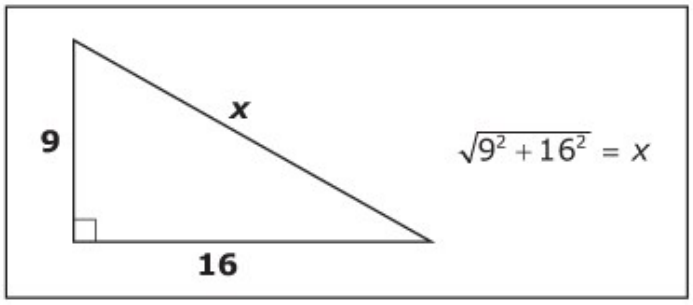
70. A student used the triangle and equation shown to find x, the missing side length.



Which equation shows the correct result of the first step?

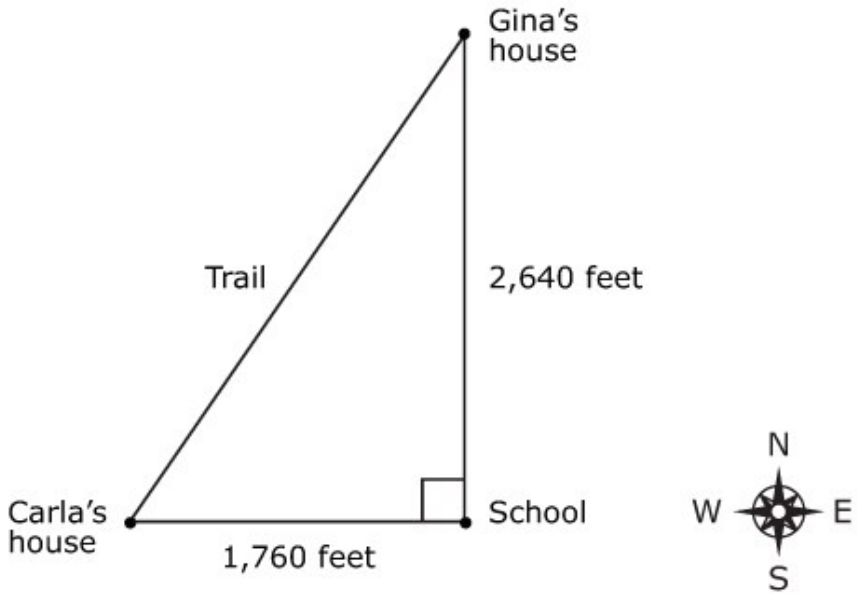
A. $\sqrt{81 + 256} = x$

B. $\sqrt{18 + 32} = x$

C. $9 + 16 = x$

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

71. Gina lives 2,640 feet directly north of the school and Carla lives 1,760 feet directly west of the school. There is a trail between the two houses, as shown on the diagram.



Which distance is the closest approximation for the length of the trail?

A. 4,400 ft

B. 3,173 ft

C. 1,968 ft

D. 880 ft

72. **The lengths of the legs of a right triangle are 0.3 feet and 0.4 feet. What is the length of the hypotenuse of this right triangle?**

A. 0.1 ft
B. 0.3 ft
C. 0.5 ft
D. 0.7 ft

73. **How could Lynn calculate the length of the diagonal of a square?**

A. by multiplying the length of the square times itself
B. by adding the lengths of all four sides of the square
C. by multiplying $\frac{1}{2}$ by the length of the base times the height
D. by squaring one side length and doubling the value; then taking the square root of that value

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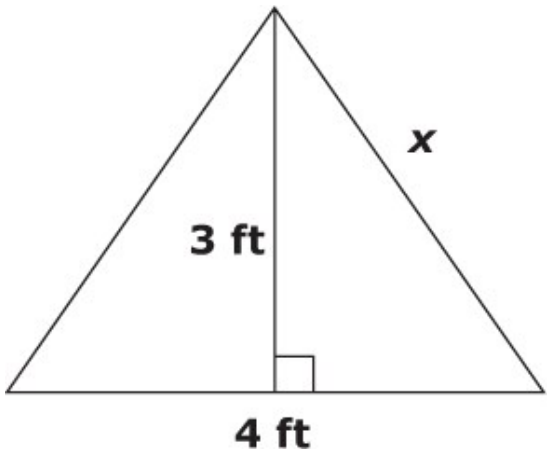
74. The front of a tent has the dimensions shown. The tent pole bisects the base.



What is the length of the side of the tent, *x*, in feet (ft)?

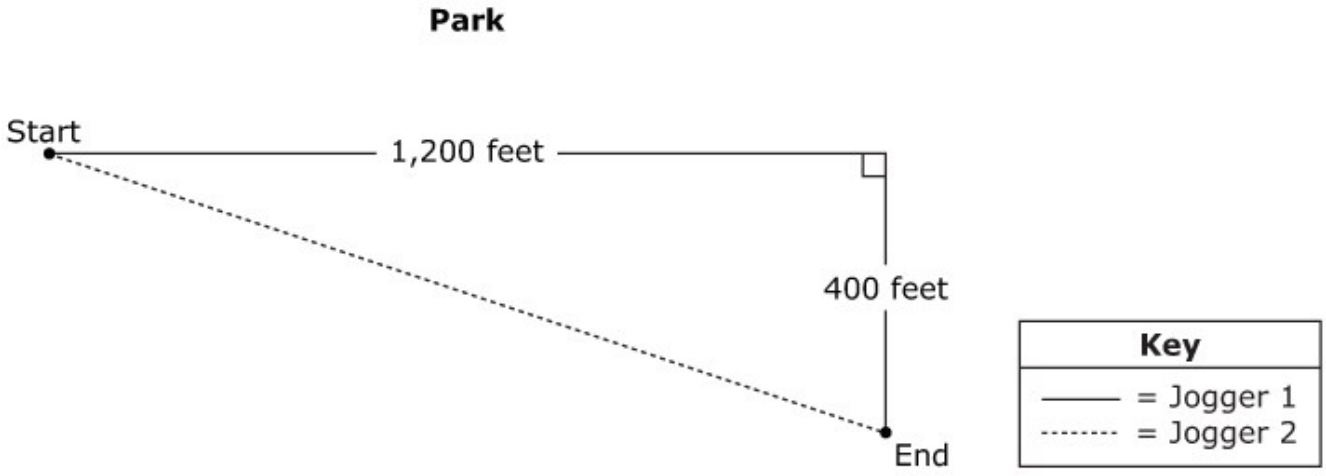
A. $\sqrt{5}$

B. $\sqrt{7}$

C. $\sqrt{13}$

D. $\sqrt{25}$

75. Two joggers start at the same location in a park and run on different paths to arrive at the same endpoint.



Which distance is the best approximation for the difference in the distances traveled by the two joggers?

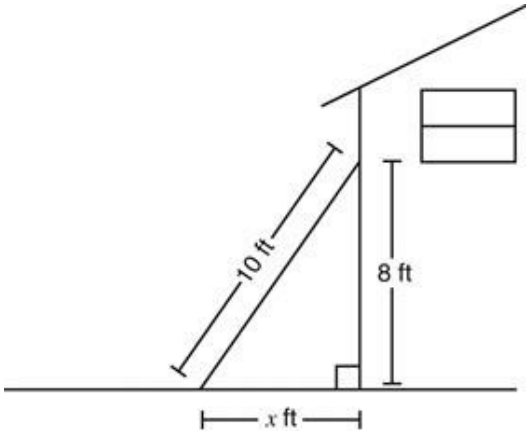
A. 335 ft

B. 800 ft

C. 1,265 ft

D. 1,560 ft

76. **Paula leaned a 10-foot ladder against a building as shown below.**



If Paula wants the top of the ladder to reach exactly 8 feet (ft) up the building, what is *x*, the distance between the building and the base of the ladder, in feet?

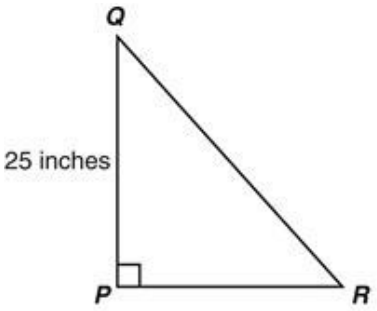
A. 2

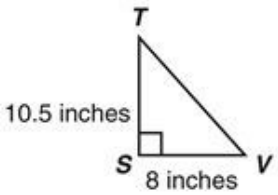
B. 4

C. 6

D. 9

77. **These are two similar right triangles, *PQR* and *STV*.**





Which measurement is closest to the length of the hypotenuse of $\triangle PQR$?

A. 13.2 inches
B. 31.4 inches
C. 32.8 inches
D. 41.3 inches

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78. A hot air balloon is tied to the ground by a 200-yd rope as shown in the picture below.

The balloon is floating 20 yds west of where the rope is tied to the ground. ***About*** how high in the air is the hot air balloon?

A. 180 yds

B. 199 yds

C. 201 yds

D. 220 yds

79. **A rectangular sign has a height of 7 feet and a width of 24 feet. What is the length, in feet, of its diagonal?**

A. $15\frac{1}{2}$ feet

B. 17 feet

C. 25 feet

D. 31 feet

80. **Alena designed an obstacle course. On the course, there is a ladder leaning against the top of a 24 ft wall. If the ladder is 7 ft from the base of the wall, then what is the length of the ladder?**

A. 15.5 ft
B. 17 ft
C. 25 ft
D. 31 ft

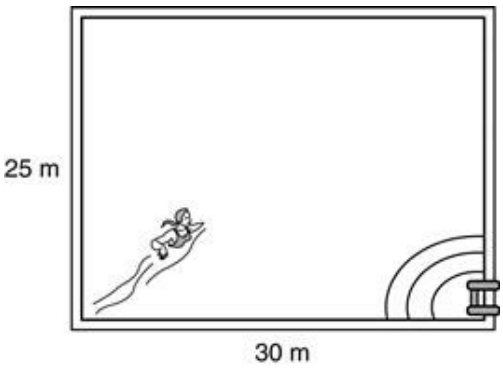
81. **Which of the following is the maximum length of pipe, 1 inch in diameter, that will fit inside a rectangular prism 12 inches wide, 16 inches long, and 21 inches tall?**

A. 21 inches
B. 26 inches
C. 28 inches
D. 37 inches

82. There is a pole located in a garden. The pole's base is 4.5 feet west and 5.1 feet north of a brick that marks the entrance of the garden. A bird is sitting on top of the pole. If the pole is 6 feet tall, approximately how far is the bird from the brick that marks the entrance of the garden?

A. 6.8 feet
B. 7.5 feet
C. 7.9 feet
D. 9.1 feet

83. **The pool in the figure below has a length of 30 meters and a width of 25 meters. Marta decides to swim diagonally across the pool.**



Approximately how many more meters will Marta swim diagonally than if she swims the length of the pool?

A. 9.1
B. 14.1
C. 16.6
D. 39.1

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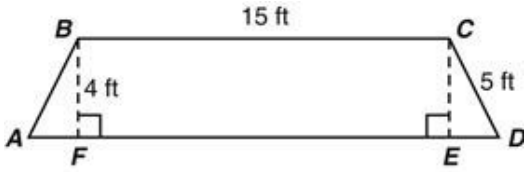
84. **What is the length, in feet, of $\overline{AD}$ in the isosceles trapezoid *ABCD*?**



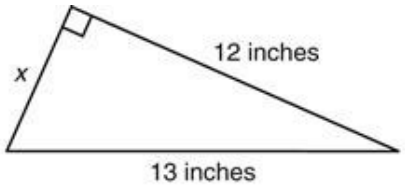
Note: Figure is not drawn to scale.

A. 3 feet
B. $\sqrt{10}$ feet
C. $\sqrt{41}$ feet
D. 21 feet

85. **A triangle has sides that measure 5 units, 7 units, and 8 units. Is this triangle a right triangle?**

A. Yes, it is a right triangle because $7^2 + 5^2 = 8^2$.
B. No, it is not a right triangle because $7^2 + 5^2 \neq 8^2$.
C. Yes, it is a right triangle because $7^2 + 5^2 \neq 8^2$.
D. No, it is not a right triangle because $7^2 + 5^2 = 8^2$.

86. **A right triangle is shown below.**



Note: Figure is not drawn to scale.
How long is *x* in inches?

A. 1
B. 5
C. 25
D. $\sqrt{313}$

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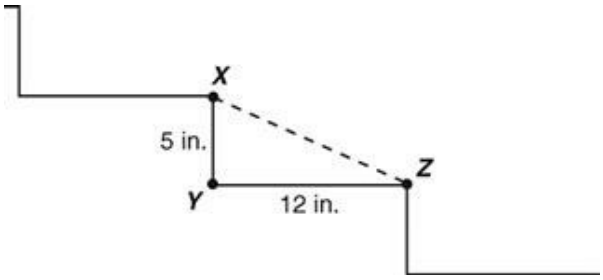
87. **What is the length of $\overline{XZ}$?**



A. 7 inches
B. 13 inches
C. 17 inches
D. 25 inches

88. Heidi helped build a slide at the local park. The ladder is 4 feet high, and the slide is 5 feet long. How far is the bottom of the ladder from the bottom end of the slide?

A. 3 feet
B. 4 feet
C. 5 feet
D. 6 feet

89. Carolyn's house is 15 miles south of Ben's house. Paula's house is 8 miles east of Carolyn's house. What is the shortest distance between Ben's house and Paula's house?

A. 7 miles
B. 13 miles
C. 17 miles
D. 23 miles

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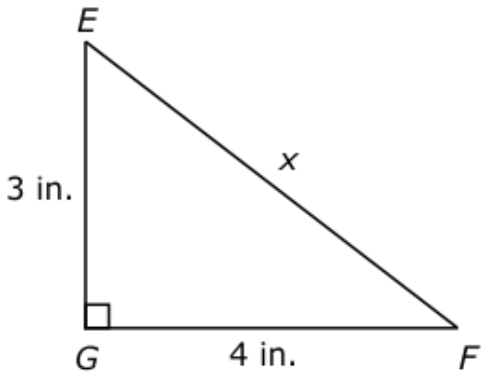
90. Triangle *EFG* is shown below.



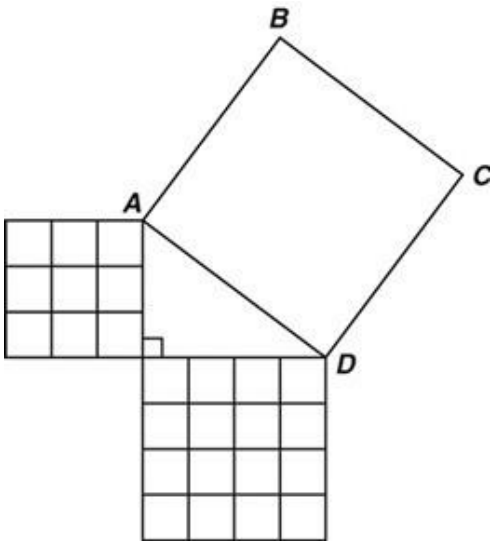
What is the measure of side *EF*?

A. 5 in.

B. 6 in.

C. 7 in.

91. **The triangle below is a right triangle. One leg measures 3 units and the second leg measures 4 units.**



How many square units will be in Square *ABCD*?

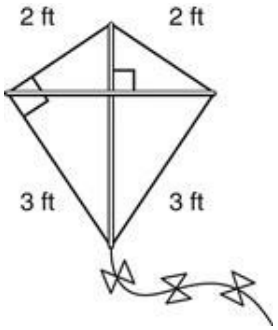
A. 5

B. 7

C. 25

D. 49

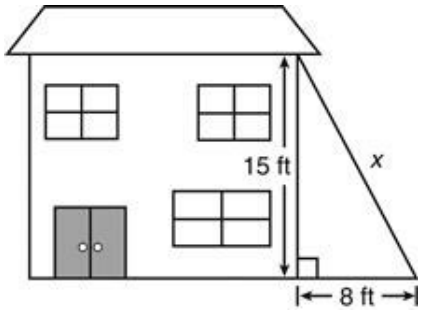
92. **Jim has a kite whose sides and angles have measurements as shown in the picture below.**



Which measurement is closest to the length from the top of the kite to the bottom of the kite, excluding the tail?

A. 3 feet
B. $3\frac{1}{2}$ feet
C. $4\frac{1}{2}$ feet
D. 5 feet

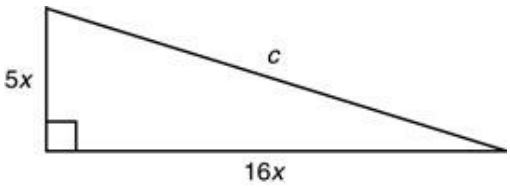
93. **A ladder is leaning against the side of a house. The base of the ladder is 8 feet away from the wall, and the top of the ladder reaches a point on the house that is 15 feet above the ground. The ladder is *x* feet long.**



What is the value of *x*?

A. 7
B. 13
C. 17
D. 23

94. **What is the length of side *c* for the following right triangle?**



A. $\sqrt{40x^2}$
B. $\sqrt{231x}$
C. $\sqrt{160x}$
D. $\sqrt{281x^2}$

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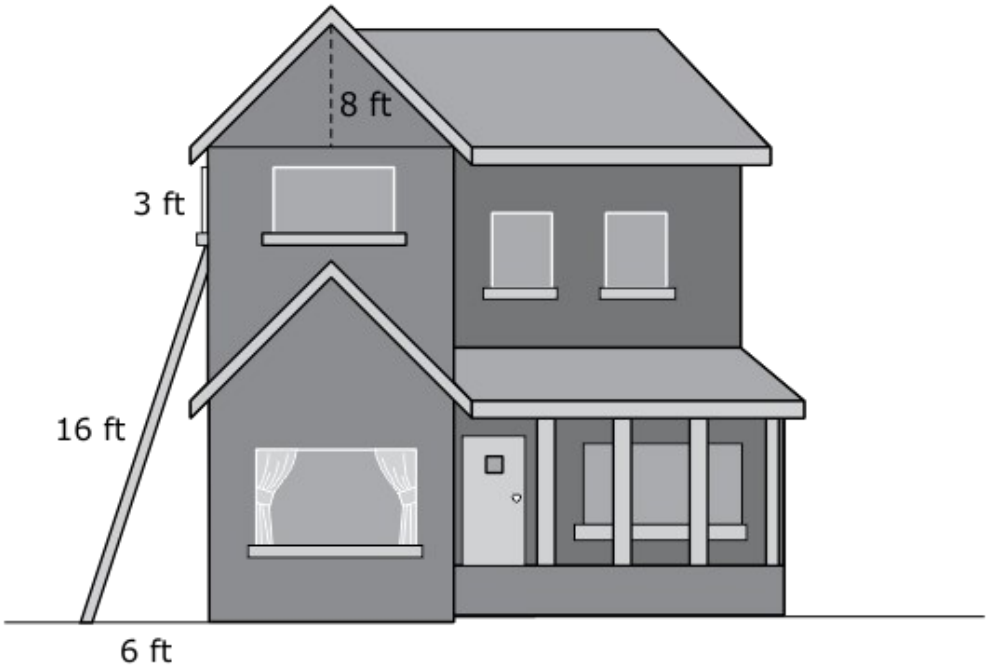
95. A 16-ft ladder leans against a house and is 3 ft from the edge of the roof, as shown in the drawing below.



What is the ***approximate*** height of the house, including the roof?

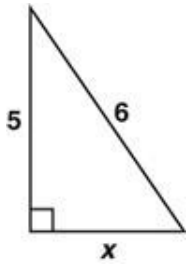
A. 24 ft

B. 26 ft

C. 27 ft

D. 28 ft

96. **What is the value of *x* in the triangle below?**



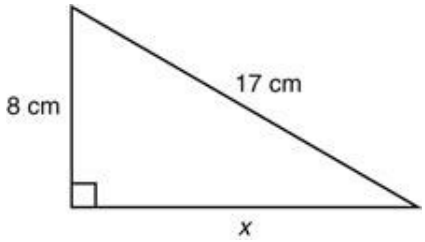
A. 1

B. $\sqrt{11}$

C. $\sqrt{61}$

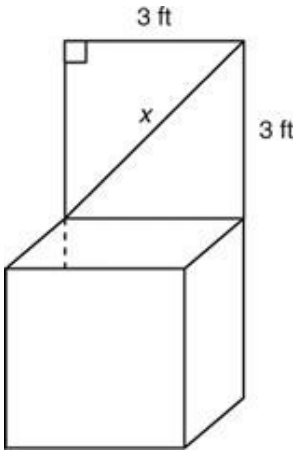
D. 11

97. **What is *x*, the missing length in the triangle shown below?**



A. 9 cm
B. 15 cm
C. 19 cm
D. 25 cm

98. **Renee built a cubic toy box and lid. The lid needs a diagonal support board.**



If each edge of the cube is 3 feet long, how long must the support board be?

A. 3 ft
B. $3\sqrt{2}$ ft
C. 6 ft
D. $6\sqrt{2}$ ft

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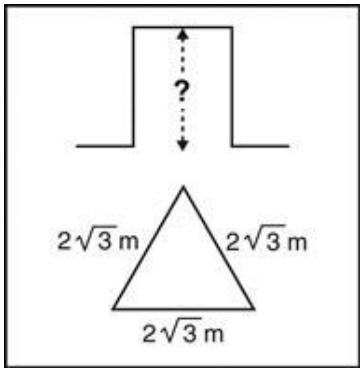
99. **A photograph is mounted on a canvas in the shape of an equilateral triangle. Each side of the canvas measures $2\sqrt{3}$ meters. The museum wants to move the photograph in an upright position through a doorway.**



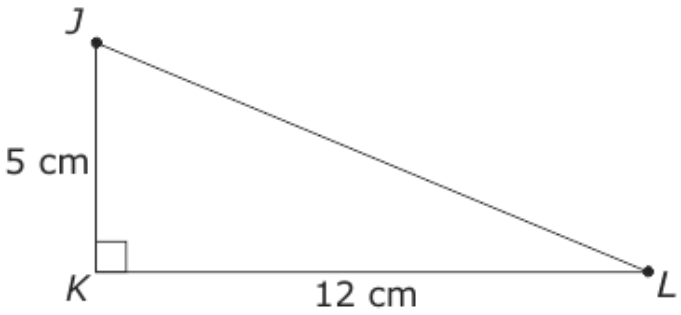
Which is closest to the minimum doorway height required in order for the photograph to pass through?

A. 3 m
B. 2 m
C. $\sqrt{15}$ m
D. $2\sqrt{6}$ m

100. A right triangle has a hypotenuse of 11.5 inches. One of its legs is 7.5 inches. What is the ***approximate*** length of the other leg?

A. 4.0 inches
B. 4.4 inches
C. 8.7 inches
D. 13.7 inches

101. What is the perimeter of $\triangle JKL$ below?



A. 28 cm

B. 30 cm

C. 34 cm

D. 36 cm

102. **Which of the following is the greatest width of a piece of window glass that will fit through a rectangular window that is 16 inches wide and 30 inches tall?**

A. 16 inches

B. 30 inches

C. 33 inches

D. 46 inches

103. Sara draws a rectangle with a length of 78 inches and a width of 39 inches. She draws a diagonal line from one corner to the other. ***Approximately*** how long is the diagonal line?

A. 59 inches

B. 68 inches

C. 87 inches

D. 117 inches

104. The length of a football field is 360 feet and the width is 160 feet. What is the ***approximate*** length of the diagonal of the football field?

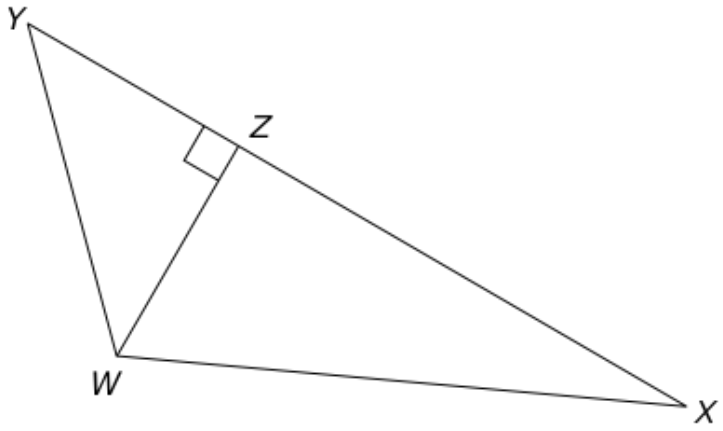
A. 260 feet

B. 322 feet

C. 394 feet

D. 416 feet

105. In triangle *WXY* below, *XY* measures 16 cm, *YZ* measures 4 cm, and *WX* measures 13 cm.



What is the area of triangle *WXY*?

A. $40\ cm^2$

B. $60\ cm^2$

C. $80\ cm^2$

D. $100\ cm^2$

106. The shortest side of a right triangle is 7.2 centimeters long and the longest side is 15.5 centimeters long. What is the length, to the nearest tenth of a centimeter, of the third side?

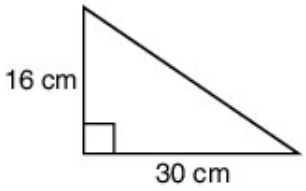
A. 8.3 cm

B. 11.4 cm

C. 13.7 cm

D. 17.1 cm

107. Which expression can be used to find the length of the third side of the triangle below?



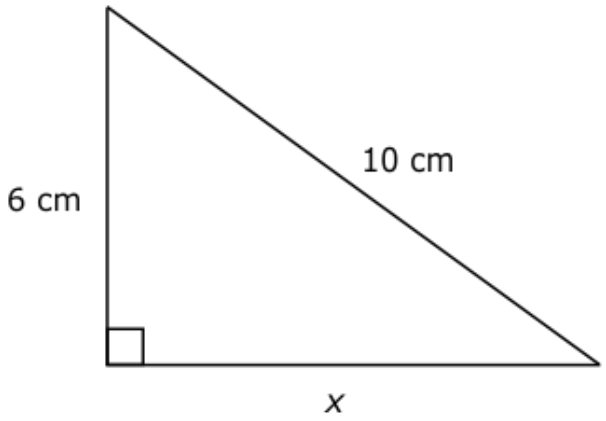
A. $16+30$

B. $\sqrt{16+30}$

C. 16^2+30^2

D. $\sqrt{16^2+30^2}$

108. A right triangle is shown below.



What is the measure of the missing side, *x*?

A. 4 cm

B. 8 cm

C. 12 cm

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109. A right triangle has an area of 60 cm^2. The base of the triangle is 15 cm long. What is the length of the hypotenuse of the right triangle?

A. 16 cm

B. 17 cm

C. 18 cm

D. 19 cm

110. Which set of measurements could be the side lengths of a right triangle?

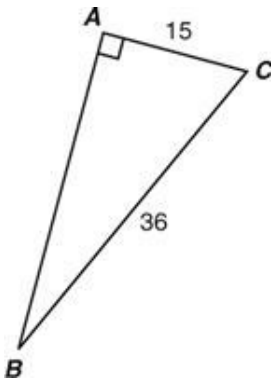
A. {10 cm, 12 cm, 16 cm}

B. {20 cm, 21 cm, 29 cm}

C. {30 cm, 32 cm, 42 cm}

D. {40 cm, 42 cm, 56 cm}

111. **What is the length of $\overline{AB}$ in this triangle?**



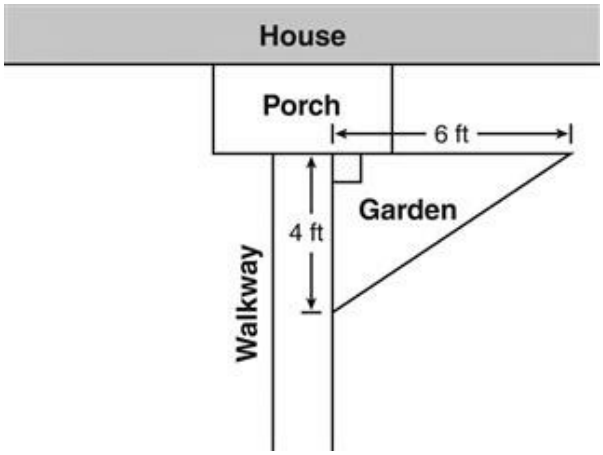
A. 21 units

B. 39 units

C. $\sqrt{42}$ units

D. $3\sqrt{119}$ units

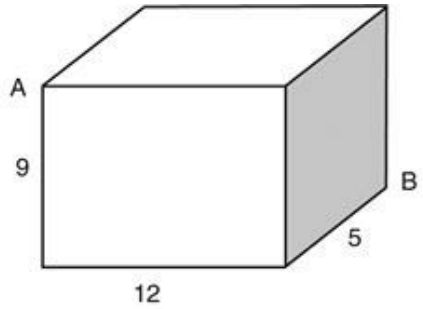
112. **Gilbert wants to build a triangular flower garden by the front porch of his house. The garden will be 6 feet long near the front of the house and 4 feet long next to the walkway.**



What will be closest to the length, in feet, of the longest edge of his garden?

A. 2
B. 4.5
C. 7.2
D. 10

113. **The figure is a rectangular prism.**



Note: The figure is not drawn to scale.
What is the length of the diagonal from Point *A* to Point *B*?

A. 13
B. 15
C. $5\sqrt{10}$
D. $12\sqrt{10}$

114. A soccer field is 100 yards long and 60 yards wide. What is the ***approximate*** length from one corner of the field to the opposite corner of the field?

A. 80 yards
B. 120 yards
C. 140 yards
D. 160 yards

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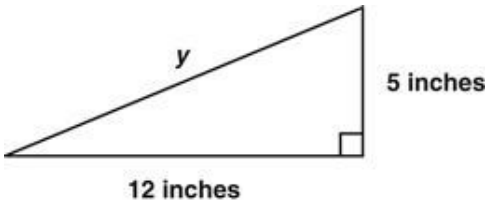
115. **What is the length of the hypotenuse in inches?**

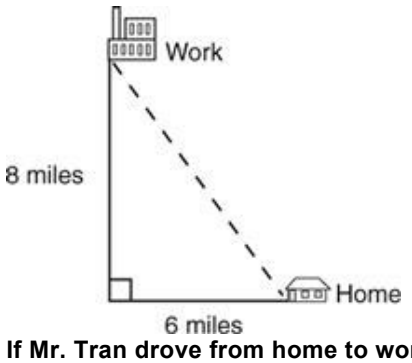


A. 13 inches
B. 17 inches
C. 119 inches
D. 169 inches

116. **Which of the following could be the lengths of the sides of a right triangle?**

A. 0.9 cm, 0.6 cm, 1.5 cm
B. 0.9 cm, 1.2 cm, 1.5 cm
C. 0.9 cm, 1.2 cm, 1.8 cm
D. 0.9 cm, 1.5 cm, 1.5 cm

117. **Mr. Tran drives from home to work every day following the L-shaped path shown below.**



If Mr. Tran drove from home to work following the dotted path, how far would his drive be?

A. 14 mi
B. 12 mi
C. 10 mi
D. 8 mi

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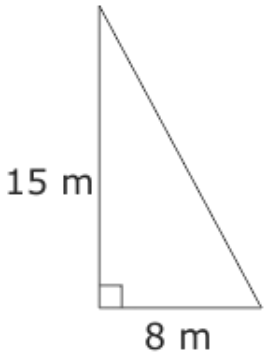
118. What is the length of the hypotenuse in the triangle below?



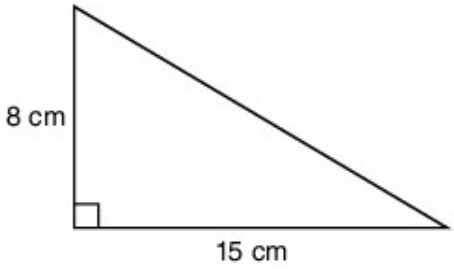
A. 13 m

B. 17 m

C. 19 m

D. 22 m

119. Which expression could be used to find the length of the third side of the triangle below?



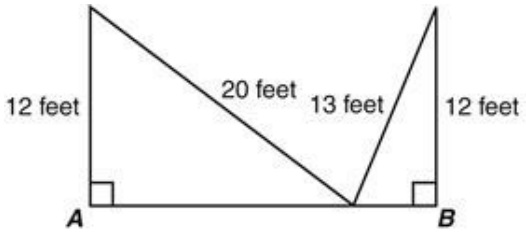
A. $8+15$

B. $\sqrt{8+15}$

C. 8^2+15^2

D. $\sqrt{8^2+15^2}$

120. **A figure with two right triangles is shown below.**



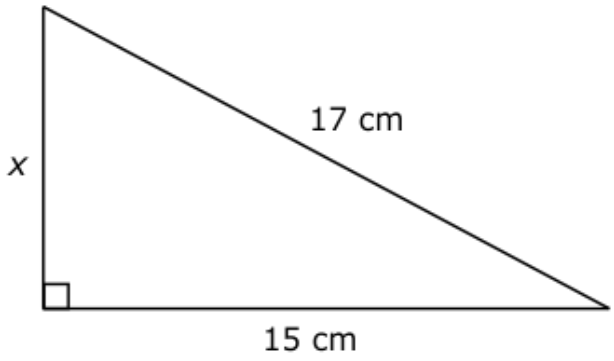
What is the distance between *A* and *B*?

A. 21 feet
B. 33 feet
C. 40 feet
D. 57 feet

121. Sarah left the boat dock and sailed 5 miles due east. She turned and then sailed 10 miles due north. ***About*** how far is Sarah from the boat dock?

A. 9 miles
B. 10 miles
C. 11 miles
D. 15 miles

122. A right triangle is shown below.



What is the measure of the missing side, *x*?

A. 13 cm
B. 12 cm
C. 8 cm

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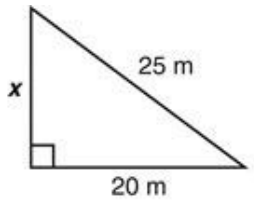
123. **Which of the following is closest to the length of the diagonal of a square that has sides that are 60 feet long?**

A. 10.9 feet
B. 84.9 feet
C. 90.0 feet
D. 120.0 feet

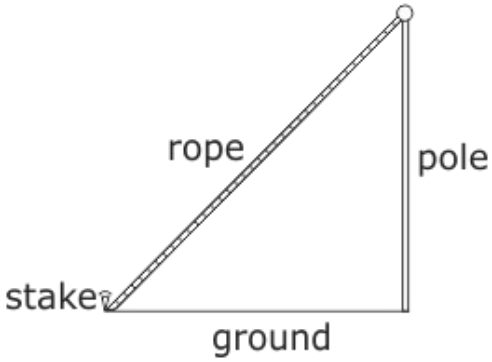
124. **What is *x* in meters?**



Note: Figure is not drawn to scale.

A. $\sqrt{5}$
B. $\sqrt{15}$
C. 5
D. 15

125. A rope 10 feet long is tied to the top of an 8-foot pole.



If the rope is pulled tightly, how far from the bottom of the pole should the rope be staked to the ground?

A. 2 feet
B. 6 feet
C. 9 feet
D. 13 feet

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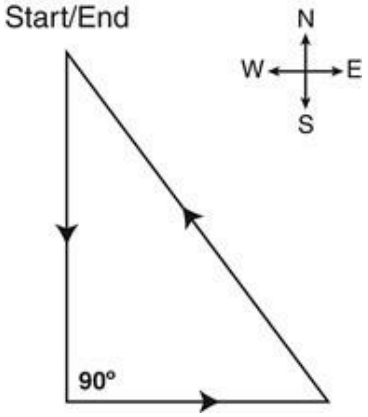
126. **Jake walked due south, made a 90º turn, and walked due east. Then he turned and walked northwest straight back to where he started.**



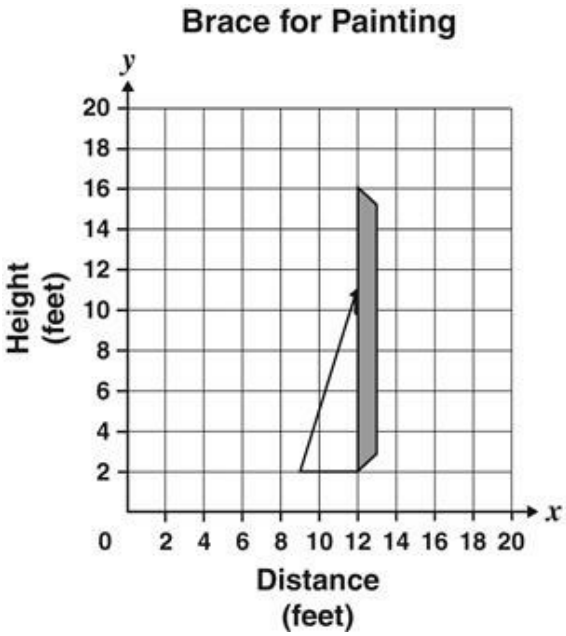
Which choice below could represent the distances Jake walked?

A. 40 yards south, 30 yards east, 70 yards northwest
B. 50 yards south, 40 yards east, 60 yards northwest
C. 50 yards south, 20 yards east, 30 yards northwest
D. 80 yards south, 60 yards east, 100 yards northwest

127. **Which of the following gives the best statement of the Pythagorean theorem?**

A. In a right triangle, the square of the length of the hypotenuse equals the sum of the square of the lengths of the legs.
B. In a right triangle, the square of the length of the hypotenuse equals the difference of the squares of the lengths of the legs.
C. If the square of the length *c* of one side of a triangle equals the sum of the square of the lengths of the legs, then it is a right triangle with hypotenuse of length *c*.
D. If the square of the length *c* of one side of a triangle equals the difference of the square of the lengths of the legs, then it is a right triangle with hypotenuse of length *c*.

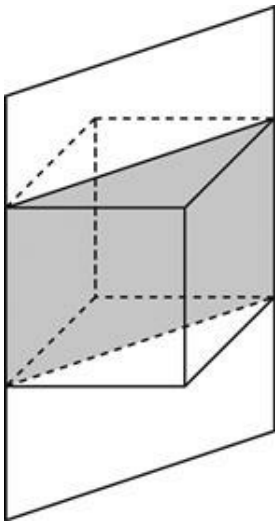
128. **The graph below shows a $9\frac{1}{2}$-foot brace that is placed against a painting at an art exhibit for support. The bottom of the brace is 3 feet from the painting.**



At what distance from the ground does the brace touch the painting?

A. 8.5 feet
B. 9.0 feet
C. 9.5 feet
D. 9.9 feet

129. **A cube is cut perpendicular to and diagonally across the base, as shown below.**



What is the ratio of the area of the shaded cross section to the area of one of the square faces of the cube?

A. 1 : 1
B. $\sqrt{2} : 1$
C. $\sqrt{3} : 1$
D. 2 : 1

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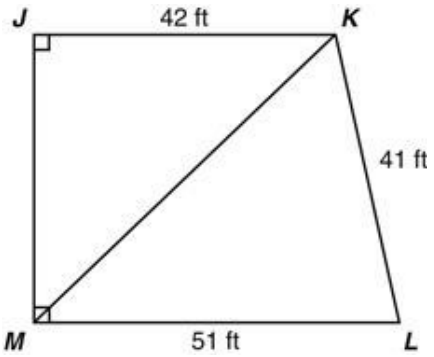
130. **In Quadrilateral *JKLM* below, $\angle KJM$ and $\angle JML$ are right angles. The dimensions shown are in feet.**



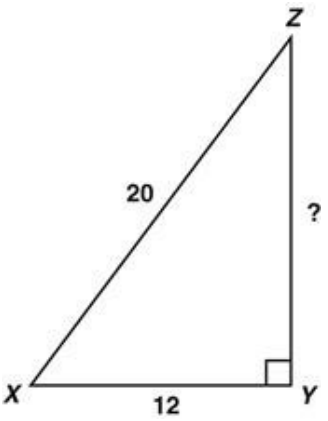
What is the length of $\overline{KM}$?

A. 40 feet
B. 51 feet
C. 58 feet
D. 65 feet

131. **Which of the following calculations best represents the correct use of a square root?**

A. finding the area of a triangle
B. finding the area of a trapezoid
C. finding the length of the diagonal of a rectangle
D. finding the length of the diameter of a circle given the circumference

132. **If $\triangle XYZ$ is a right triangle, what is the length, in units, of $\overline{YZ}$?**



A. 8
B. 16
C. $\sqrt{32}$
D. $\sqrt{544}$

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133. The legs of a right triangle measure 10 m and 24 m. What is the length of the third side of the right triangle?

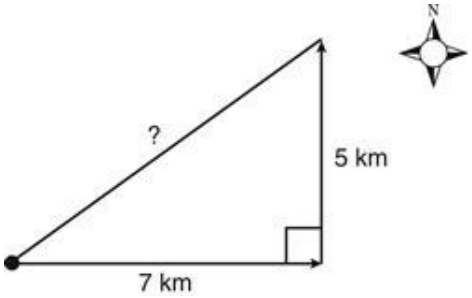
A. 17 m

B. 22 m

C. 26 m

D. 34 m

134. **Lucas rode his bike for 7 kilometers (km) east and then 5 km north.**



How far was Lucas from his starting point?

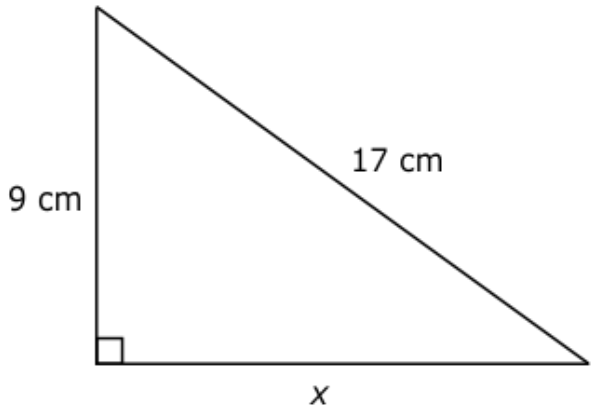
A. $\sqrt{24}$ km

B. 6 km

C. $\sqrt{74}$ km

D. 12 km

135. A right triangle is shown below.



What is the ***approximate*** measure of the missing side, *x*?

A. 8 cm

B. 14 cm

C. 19 cm

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136. **Mr. Torres is building a rectangular patio with side lengths of 8 feet and 15 feet. In order to ensure that the corners are perpendicular, which best represents the length of the diagonal?**

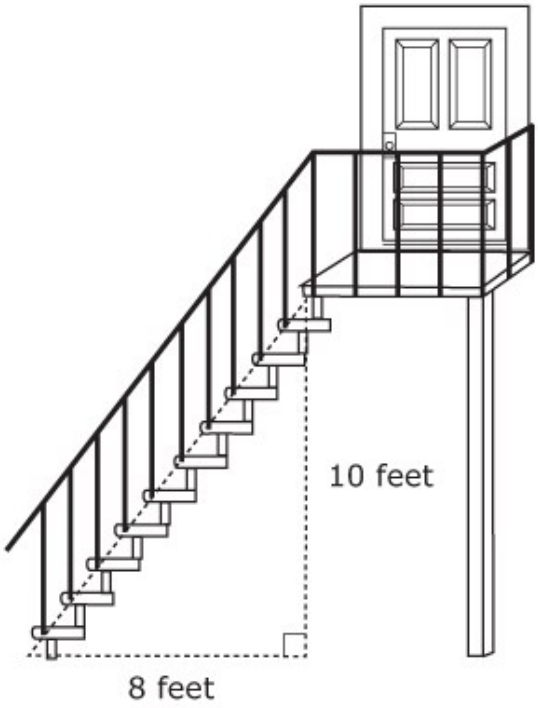
A. $11\frac{1}{2}$ ft

B. 17 ft

C. $19\frac{1}{2}$ ft

D. 23 ft

137. A staircase runs along the outside of a building to the second floor.



Which distance, to the nearest tenth of a foot, is closest to the length of the staircase?

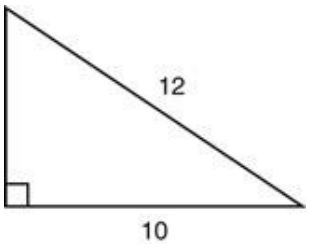
A. 6.0 feet

B. 8.6 feet

C. 10.4 feet

D. 12.8 feet

138. **What is the length of the unlabeled side of this triangle?**

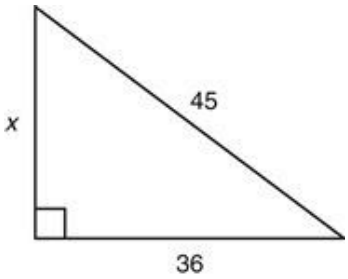


A. 2
B. 4
C. $\sqrt{44}$
D. $\sqrt{134}$

139. **Which of these sets of measurements represents the lengths of the sides of a right triangle?**

A. 10, 24, 26
B. 5, 12, 34
C. 12, 18, 30
D. 1, 2, 9

140. **The unit length, *x*, of the leg in the triangle can be calculated using the equation** $45^2 - x^2 = 36^2$.



How can the value of *x* be determined?

A. Subtract 36 from 45 and square the result.
B. Take the square root of 45 and add to it the square root of 36.
C. Take the square root of 36 and subtract it from the square root of 45.
D. Take the square root of the difference between 45 squared and 36 squared.

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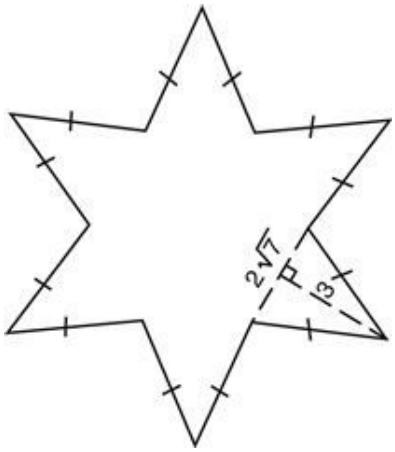
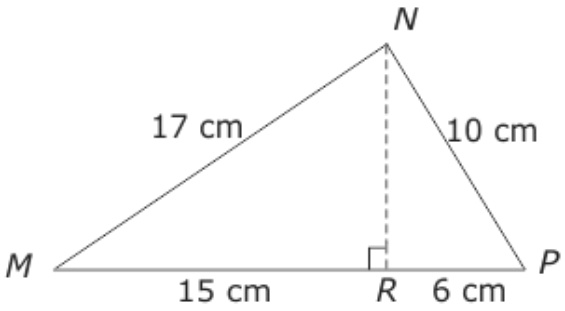
141. **What is the perimeter of the following figure?**



A. 36 units
B. $12\sqrt{10}$ units
C. 48 units
D. $48\sqrt{7}$ units

142. In the figure below is $\triangle MNP$.



What is the area of $\triangle MNP$?

A. $84\ cm^2$
B. $105\ cm^2$
C. $158\ cm^2$
D. $168\ cm^2$

143. **Which of these could be the lengths of sides of right triangle *ABC*?**

A. (5, 6, 11)
B. (5, 7, 12)
C. (5, 12, 13)
D. (6, 7, 13)

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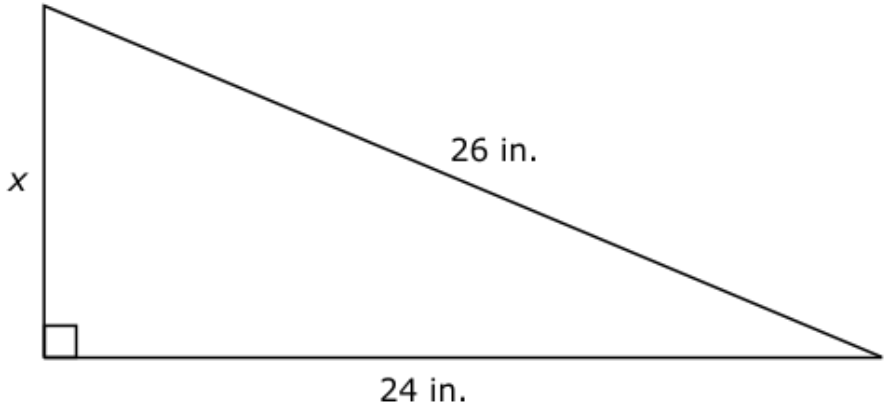
144. A right triangle is shown below.



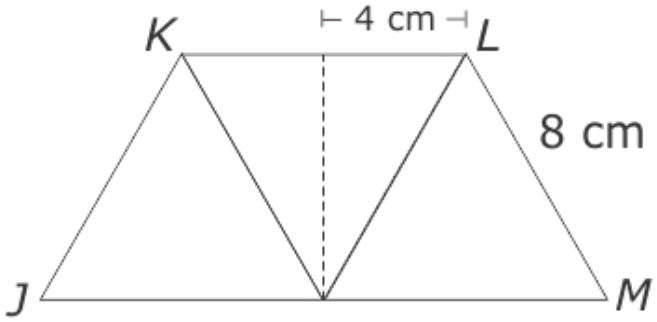
What is the measure of the missing side, *x*, of the triangle?

A. 10 in.

B. 15 in.

C. 25 in.

145. Quadrilateral *JKLM* contains 3 equilateral triangles. All 3 triangles have a side length of 8 cm.



What is the ***approximate*** area of the quadrilateral?

A. 83 cm^2

B. 96 cm^2

C. 108 cm^2

D. 192 cm^2

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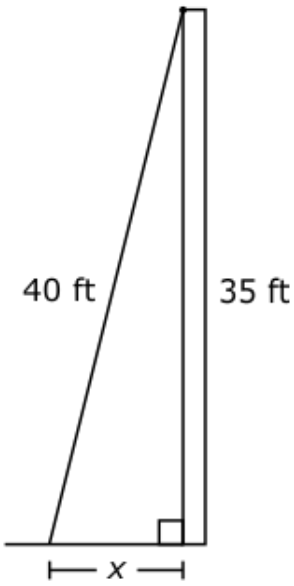
146. A 40-foot wire is attached to a pole and runs to the ground as shown below. The pole is 35 feet tall.



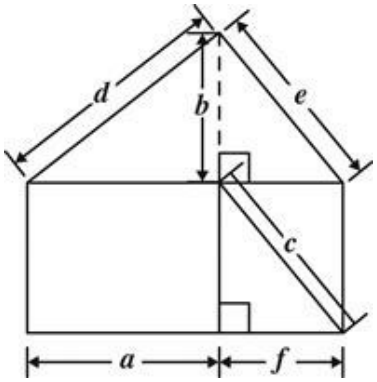
About how far away from the pole is the wire attached to the ground, *x*?

A. 19 feet

B. 53 feet

C. 75 feet

147. **What information is needed to find *d*?**



A. The lengths of *b* and *e*

B. The lengths of *c* and *b*

C. The lengths of *f* and *c*

D. The lengths of *a* and *b*

148. **If a right triangle has legs equal to 5 inches and 12 inches, what is the length of the hypotenuse in inches?**

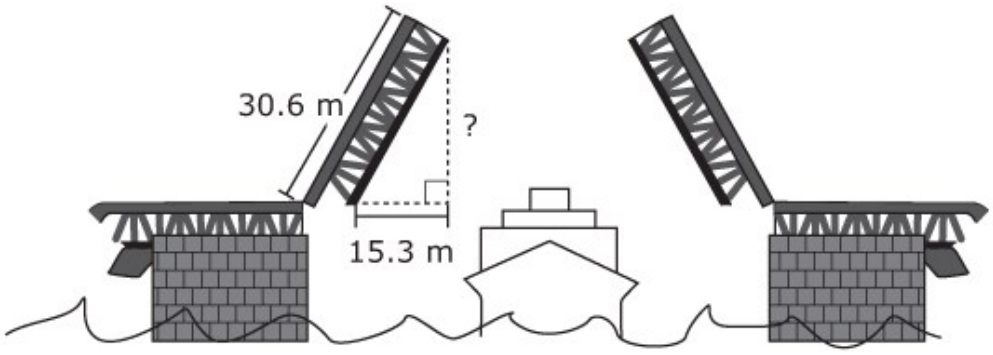
A. $\sqrt{17}$ inches

B. 6 inches

C. $\sqrt{119}$ inches

D. 13 inches

149. A section of bridge can be raised to allow tall ships to pass underneath.



Which distance, to the nearest tenth of a meter, is closest to the height that the bridge section is raised above its original horizontal position?

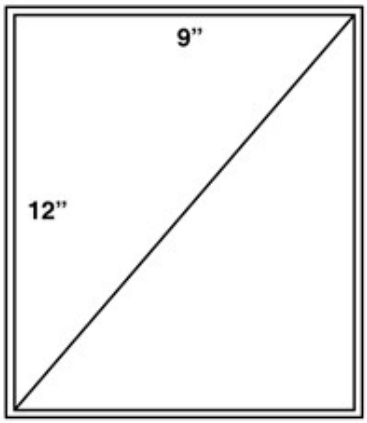
A. 10.2 m

B. 20.4 m

C. 22.8 m

D. 36.8 m

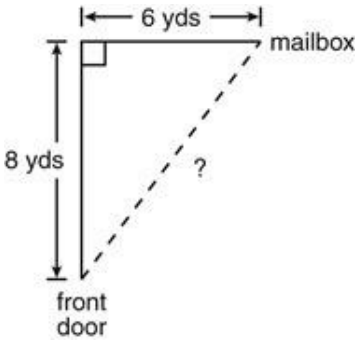
150. **A rectangular glass window is divided into two equivalent right triangles by a diagonal brace.**



What is the length of the diagonal brace?

A. 9 inches
B. 12 inches
C. 15 inches
D. 21 inches

151. **The distance from the front door of Marsha's house to the sidewalk is 8 yards. After making a right turn, it is another 6 yards to the mailbox.**



What distance will Marsha walk from the mailbox back to the front door if she walks diagonally across the lawn?

A. 6 yards
B. 8 yards
C. 10 yards
D. 14 yards

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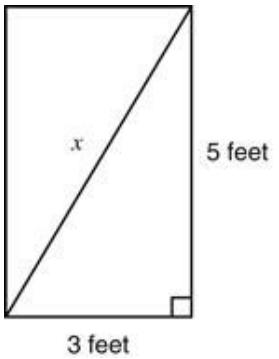
152. **Greg put a diagonal support across the back of a bookcase, as shown.**



What is the length, *x*, to the nearest tenth of a foot, of the diagonal support on the bookcase?

A. 4 feet
B. 5.8 feet
C. 6.5 feet
D. 8 feet

153. Linda bought a rectangular-shaped table.

- The top of the table has a width of 56 inches.
- The diagonal of the top of the table was 64 inches.

What is the ***approximate*** area of the top of the table?

A. 1,736 square inches
B. 1,984 square inches
C. 3,584 square inches
D. 4,762 square inches

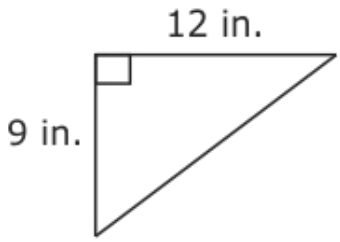
154. **A right triangle has a hypotenuse measuring 13 centimeters and one leg measuring 5 centimeters. What is the length in centimeters, of the other leg of the right triangle?**

A. 8
B. 9
C. 12
D. 18

155. The length of the hypotenuse of a right triangle is 8 cm. The length of one of its legs is 6 cm. What is the ***approximate*** area of the right triangle?

A. 48 cm^2
B. 32 cm^2
C. 24 cm^2
D. 16 cm^2

156. What is the length of the hypotenuse in the right triangle below?



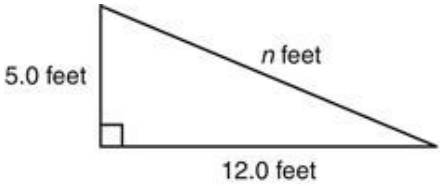
A. 8 in.

B. 15 in.

C. 20 in.

D. 21 in.

157. **What is the value of *n* in the figure below?**



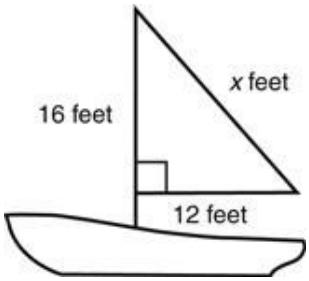
A. 7.0 ft

B. 10.9 ft

C. 13.0 ft

D. 17.0 ft

158. **David needs to order fabric for a triangular sail with the dimensions shown below.**



If the base of the sail is 12 feet long and the height is 16 feet, what is the value of x?

A. $\sqrt{28}$

B. $\sqrt{112}$

C. 20

D. 28

159. Which set of measurements could be the side lengths of a right triangle?

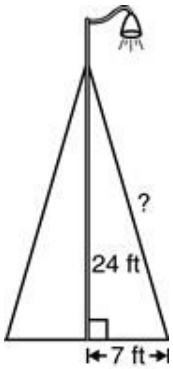
A. {3 in., 5 in., 7 in.}

B. {6 in., 9 in., 12 in.}

C. {8 in., 15 in., 17 in.}

D. {10 in., 20 in., 30 in.}

160. **An electric company attaches support cables to a light pole 24 feet (ft) from the ground and 7 feet from the base of the pole.**



How long is each support cable in feet?

A. $\sqrt{31}$

B. 17

C. $\sqrt{527}$

D. 25

161. Dennis has a 15-foot ladder. He placed it 5 feet from the base of the house and then leaned the ladder against the house. ***About*** how far up the house does the ladder reach?

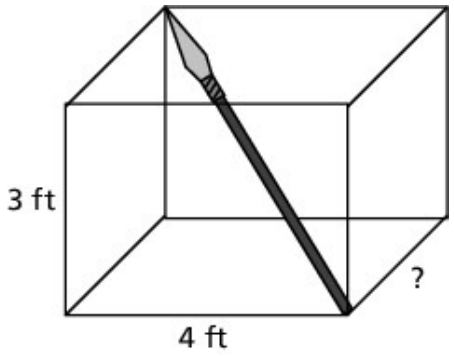
A. 20 feet

B. 18 feet

C. 16 feet

D. 14 feet

162. A spear of 5.4 ft is inserted in a wooden box as shown.



What is the approximate width of the base?

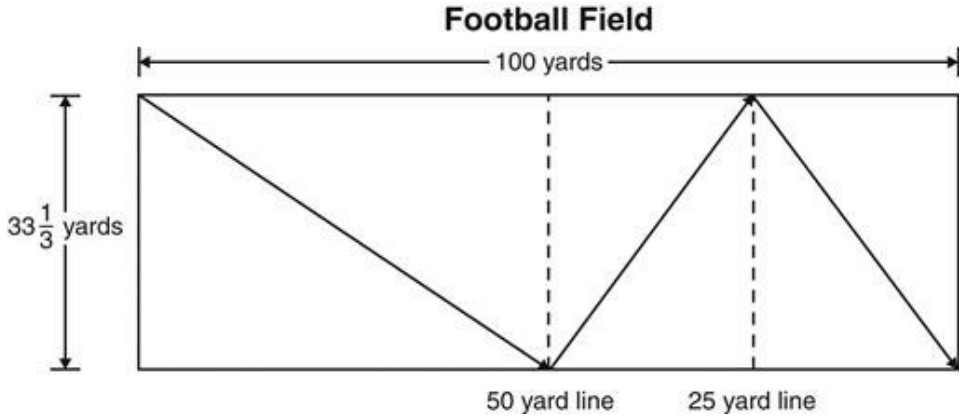
A. 7 ft

B. 5 ft

C. 3 ft

D. 2 ft

163. **A football player catches the ball at the corner of the field and runs the diagonal pattern shown in the diagram to avoid being tackled. He finishes at the opposite corner of the field.**



To the nearest foot, how far did the player run?

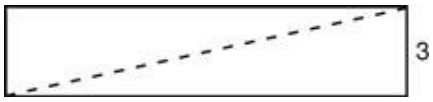
A. 143 feet

B. 305 feet

C. 361 feet

D. 430 feet

164. **The perimeter of the rectangle is 36 centimeters.**



What is the length of the diagonal?

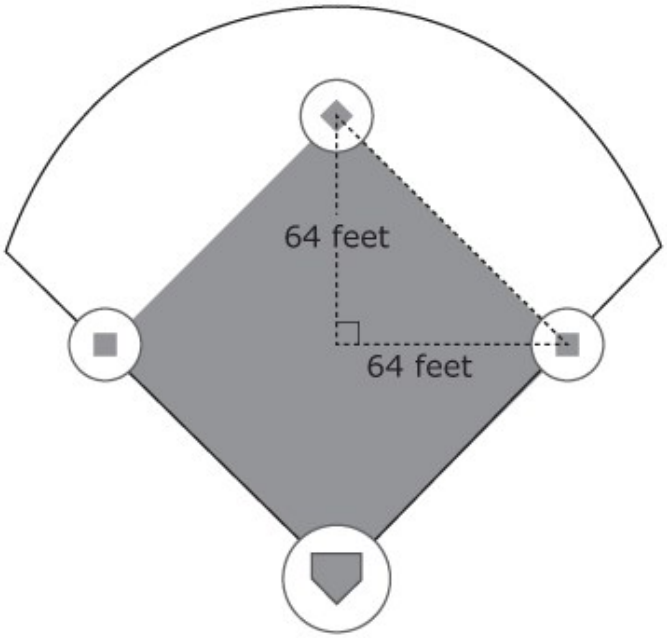
A. $\sqrt{108}$ centimeters

B. $\sqrt{144}$ centimeters

C. $\sqrt{216}$ centimeters

D. $\sqrt{234}$ centimeters

165. On an adult baseball field, the distance from each base to the center of the field is approximately 64 feet.



On a children's baseball field, the distance from each base to the center of the field is approximately 21 feet shorter than the corresponding distance on the adult baseball field. Which approximation is closest to the distance **between the bases** on a children's baseball field?

A. 43 feet

B. 61 feet

C. 70 feet

D. 86 feet

166. Which set of measurements could be the side lengths of a right triangle?

A. {2 ft, 3 ft, 5 ft}

B. {3 ft, 6 ft, 9 ft}

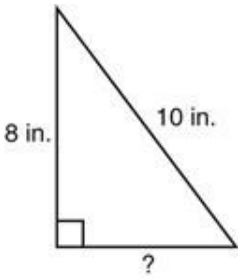
C. {5 ft, 12 ft, 13 ft}

D. {6 ft, 9 ft, 12 ft}

167. **The width of a rectangular lawn is 39 feet. A diagonal of the lawn is 89 feet. What is the length of the rectangular lawn, in feet?**

A. 50
B. 64
C. 80
D. 89

168. **What is the length of the missing side of the right triangle below in inches?**



A. $2\sqrt{41}$
B. $2\sqrt{21}$
C. 8
D. 6

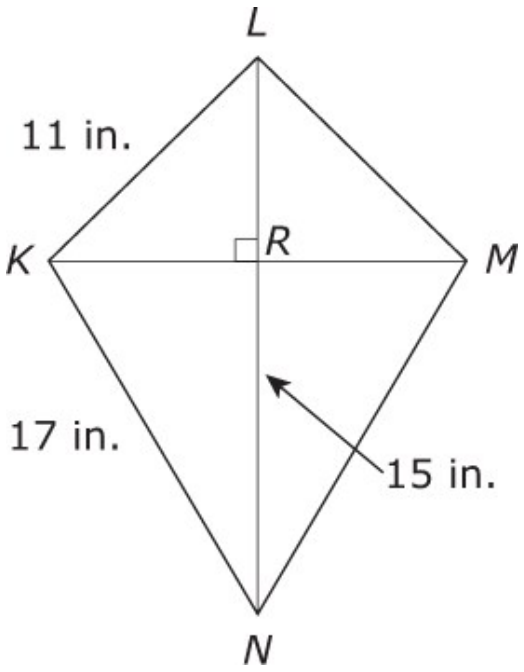
169. **The lengths of the legs of a right triangle are 3 inches and 4 inches. What is the length, in inches, of the third side of the triangle?**

A. 2.6
B. 3.5
C. 5
D. 7

170. **The length of the hypotenuse of a right triangle is 4.5 inches. The length of one of the legs is 2.7 inches. What is the length of the other leg of the triangle?**

A. 1.8 in.
B. 3.6 in.
C. 5.2 in.
D. 7.2 in.

171. Erin constructed the kite shown below.



What is the length of $\overline{KR}$ in inches (in.)?

A. 10 in.

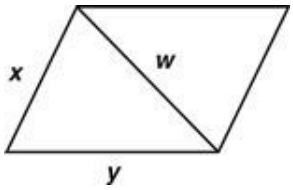
B. 8 in.

C. 4 in.

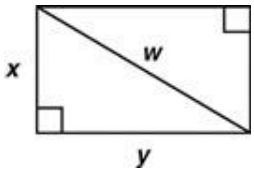
D. 2 in.

172. **Which figure supports the conclusion** $x^2 + y^2 = w^2$?

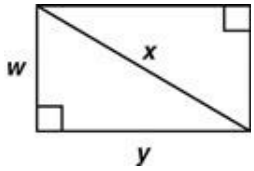
A.



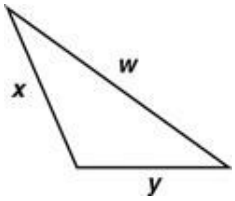
B.



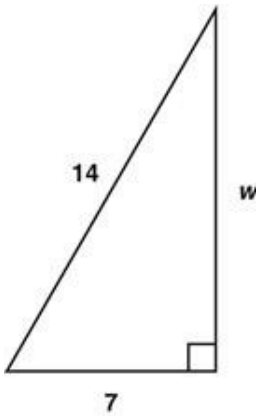
C.



D.



173. **What is the value of *w*?**



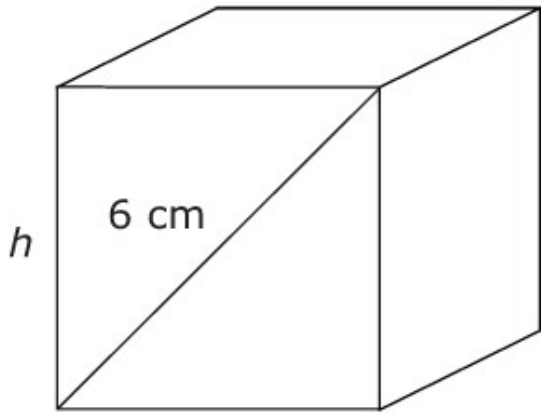
A. $\sqrt{7}$

B. $\sqrt{21}$

C. $\sqrt{147}$

D. $\sqrt{245}$

174. The diagonal of the face of a cube is 6 centimeters (cm).



What is the height, *h*, of the cube?

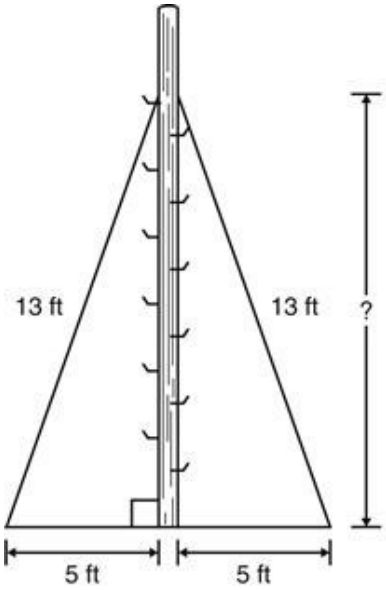
A. $\sqrt{6}$cm

B. 3 cm

C. $\sqrt{18}$cm

D. 6 cm

175. **A utility pole is supported by two wires each 13 feet long, as shown below.**



If the base of the utility pole is 5 feet from the bottom of each of the wires, at what height from the ground are the wires attached to the pole?

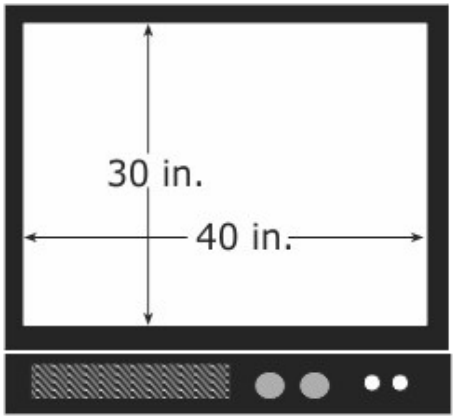
A. 8 feet

B. 12 feet

C. 14 feet

D. 16 feet

176. What is the diagonal measurement of the television screen shown in the figure below?



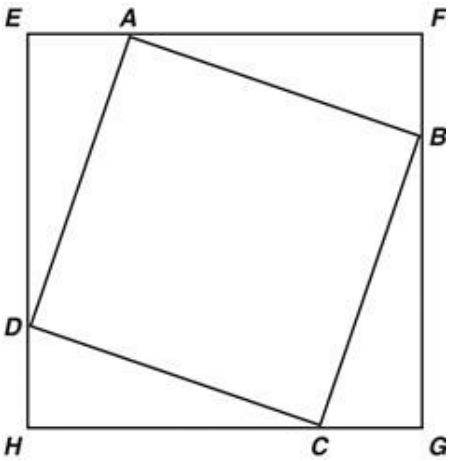
A. 35 in.

B. 50 in.

C. 70 in.

D. 1,200 in.

177. **Each vertex of Square *ABCD* lies on a side of Square *EFGH*. The area of Square *EFGH* is 961 square units, and the length of $\overline{BF}$ is 7 units.**



What is the area, in square units, of Square *ABCD*?

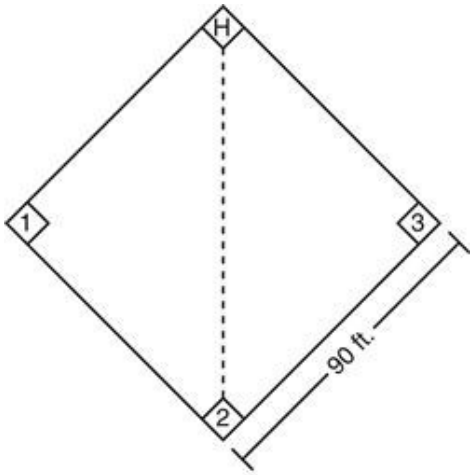
A. 289

B. 336

C. 625

D. 672

178. **A baseball diamond is actually a square with sides of 90 feet each.**



Baseball Diamond

What is the diagonal distance, in feet, from home plate to 2nd base as shown in the diagram?

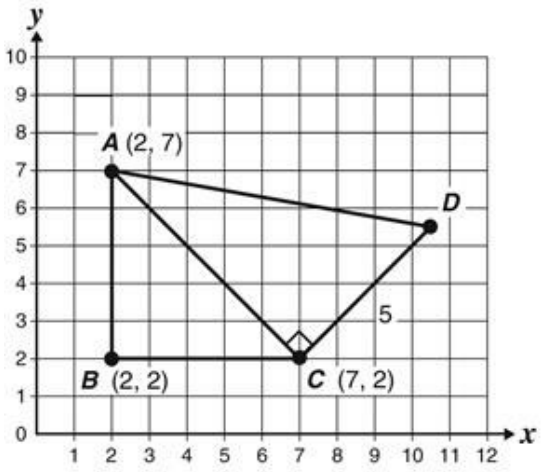
A. $\sqrt{360}$

B. $\sqrt{3600}$

C. $\sqrt{8100}$

D. $\sqrt{16,200}$

179. **Polygon *ABCD* is shown on the grid below.**



If $\overline{CD}$ has a length of 5 units, what is the length of $\overline{AD}$?

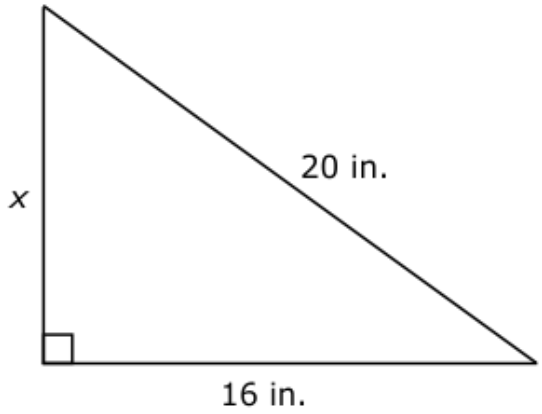
A. 5.0 units

B. $5\sqrt{2}$ units

C. 8.5 units

D. $5\sqrt{3}$ units

180. A right triangle is shown below.



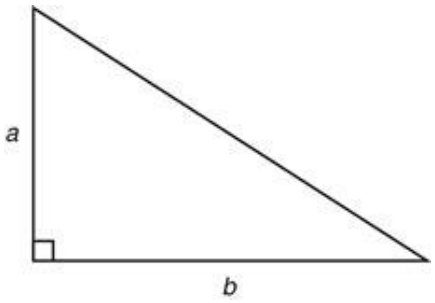
What is the measure of the missing side, *x*?

A. 12 in.

B. 18 in.

C. 26 in.

181. **Which expression represents the perimeter of the triangle below?**



A. $2a + 2b$

B. $a + b + \sqrt{a^2 + b^2}$

C. $\sqrt{a^2 + b^2}$

D. $\frac{1}{2}ab$

182. **Which window with the following dimensions is too small to allow a 48-inch piece of glass to fit through it?**

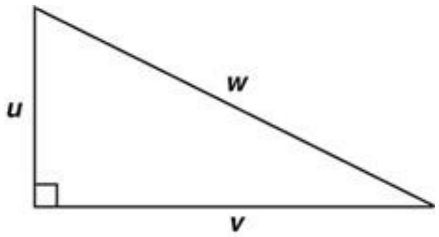
A. 28×45 inches

B. 36×27 inches

C. 40×40 inches

D. 40×42 inches

183. **In the right triangle below, *w* is the hypotenuse, and *u* and *v* are the legs.**



Which of the following statements is true, based on the Pythagorean theorem?

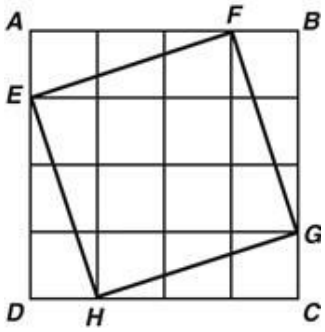
A. $v^2 = (u + w)^2$

B. $w^2 = (u + v)^2$

C. $v^2 = u^2 + w^2$

D. $w^2 = u^2 + v^2$

184. **Which expression represents the area of Square *EFGH*?**



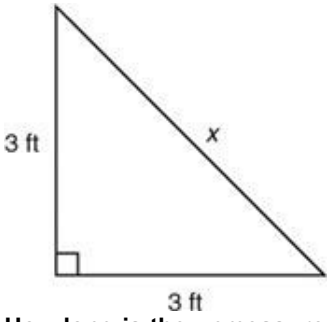
A. $\sqrt{3^2 - 1^2}$

B. $\sqrt{3^2 + 1^2}$

C. $3^2 - 1^2$

D. $3^2 + 1^2$

185. **Mr. Kimura designed a right-triangular garden for his yard, as shown in the following diagram.**



How long is the unmeasured side of his garden?

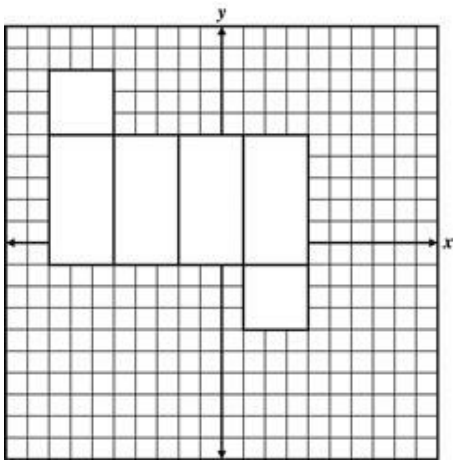
A. 5 feet

B. $3\sqrt{2}$ feet

C. $3\sqrt{3}$ feet

D. 6 feet

186. **A rectangular prism is shown in the two-dimensional graph below where each rectangular face is 3 units by 6 units.**



What is the approximate length of one of the diagonals of the rectangular prism?

A. 13.4 units
B. 7.3 units
C. 6.7 units
D. 4.2 units

187. Which measurements below are lengths of the sides of a right triangle?

A. 10 cm, 24 cm, 39 cm
B. 15 cm, 24 cm, 28 cm
C. 20 cm, 48 cm, 52 cm
D. 25 cm, 50 cm, 75 cm

188. Amy's television screen is in the shape of a rectangle. The height of the television screen is 24 inches and the width is 55 inches. What is the ***approximate*** diagonal measurement of the television screen?

A. 50 inches
B. 60 inches
C. 79 inches

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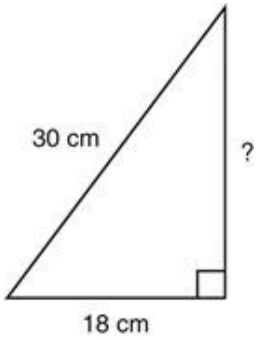
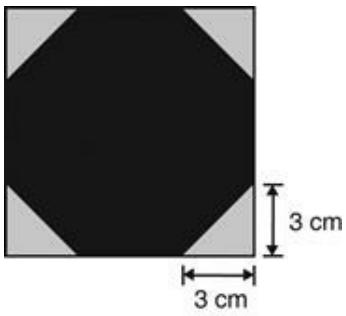
189. **What is the length of the third side of the right triangle below?**



A. 12 centimeters
B. 18 centimeters
C. 24 centimeters
D. 48 centimeters

190. **Four congruent isosceles right triangles are added to the edges of a regular octagon to form a square, as shown.**



If the legs of each of the four triangles are 3 centimeters long, which measure is closest to the perimeter of the octagon?

A. 24.0 cm
B. 25.5 cm
C. 33.9 cm
D. 72.0 cm

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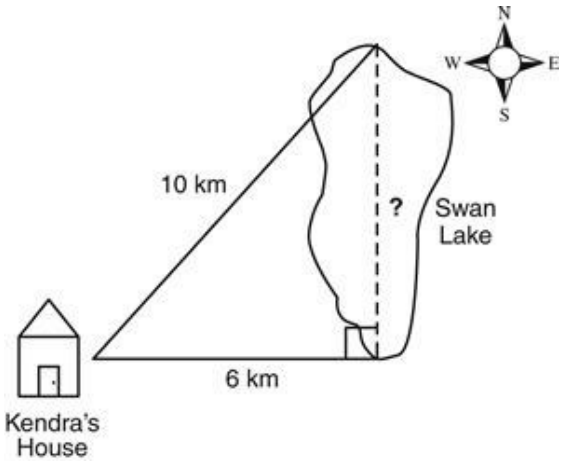
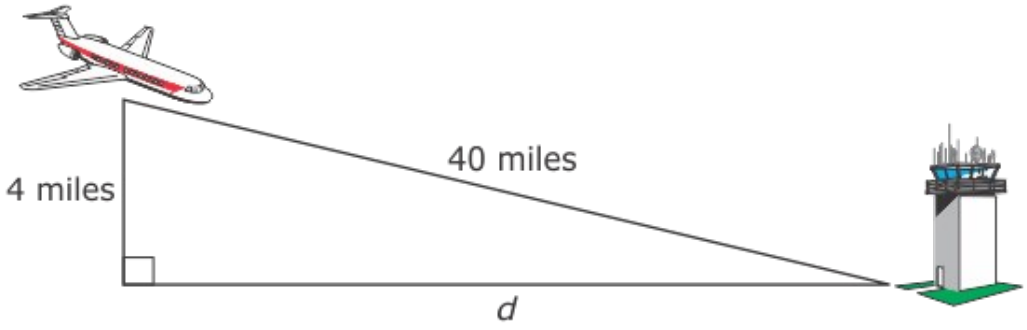
191. **Kendra lives 10 km from the northern tip of Swan Lake and 6 km from the southern tip of Swan Lake.**



What is the north-south distance across Swan Lake?

A. 4 km
B. 8 km
C. 12 km
D. 16 km

192. In the picture below, an airplane is 40 miles (air distance) from the airport and is at an elevation of 4 miles.



What is the ***approximate*** ground distance (*d*) the airplane is from the airport?

A. 20.4 mi
B. 36.0 mi
C. 39.8 mi
D. 44.0 mi

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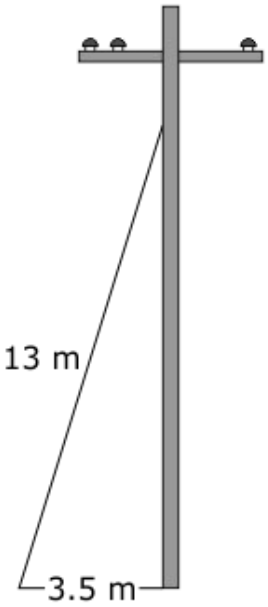
193. A wire is attached to a pole and runs to the ground.



About how high is the wire attached to the pole?

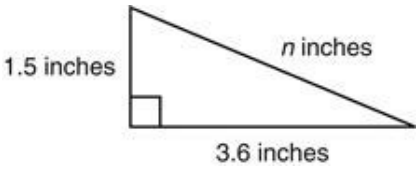
A. 3.7 m

B. 9.5 m

C. 12.5 m

D. 13.5 m

194. **What is the value of *n* in the figure below?**



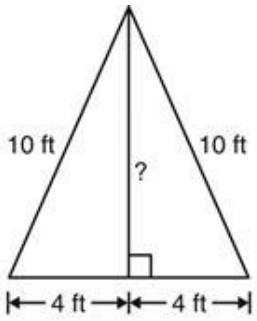
A. 2.1 in.

B. 3.3 in.

C. 3.9 in.

D. 5.1 in.

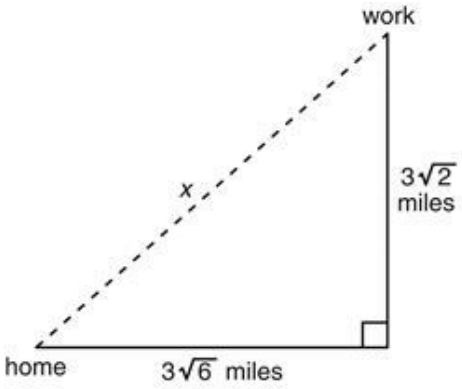
195. **A tent has sides that are 10 feet in length and opens up to 8 feet across.**



Note: Figure is not drawn to scale.
What is the height of the center support pole in feet?

A. 6 feet
B. $\sqrt{84}$ feet
C. $\sqrt{116}$ feet
D. 14 feet

196. **David travels from home to work going east $3\sqrt{6}$ miles and then north $3\sqrt{2}$ miles. If a road went straight from David's home to his work, as indicated with the dashed line in the diagram below, he would travel *x* miles to work.**



What is the value of *x*?

A. $6\sqrt{10}$ miles
B. $6\sqrt{2}$ miles
C. $4\sqrt{3}$ miles
D. $2\sqrt{6}$ miles

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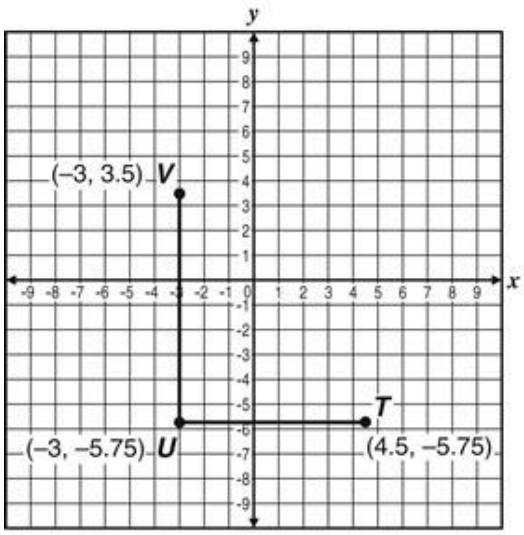
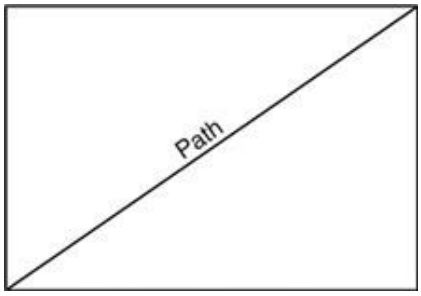
197. **Line Segments *UV* and *UT* are shown in the coordinate grid below.**



If $\overline{VT}$ is drawn to create $\triangle TUV$, which value is closest to the length of $\overline{VT}$?

A. 5.41 units
B. 8.33 units
C. 11.91 units
D. 16.75 units

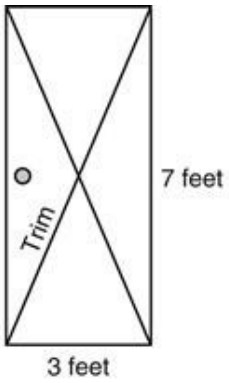
198. **The figure below represents a rectangular park.**



If the diagonal path is 750 feet long and the width of the park is 450 feet, what is the length, in feet, of the park?

A. 550 ft
B. 600 ft
C. 650 ft
D. 675 ft

199. **A 7-foot-high rectangular door needs 2 lengths of trim that make an X on the door.**



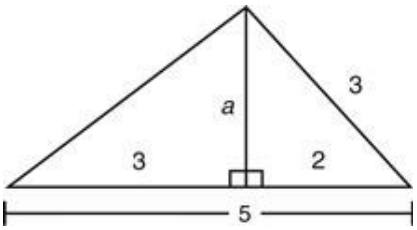
Note: Figure is not drawn to scale.
If the door width is 3 feet, what is the length of one side of the X in feet?

A. $\sqrt{10}$ inches
B. $\sqrt{21}$ inches
C. $\sqrt{40}$ inches
D. $\sqrt{58}$ inches

200. **The length of one side of a right triangle is 9 inches and the length of the hypotenuse is 15 inches. What is the length, in inches, of the remaining side?**

A. 6
B. 12
C. 17
D. 24

201. **In the triangle below, *a* represents the height of the triangle in units.**



What is the value of *a*?

A. $\sqrt{5}$
B. $\sqrt{13}$
C. $\sqrt{16}$
D. $\sqrt{21}$

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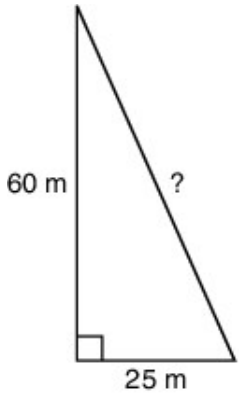
202. **The lengths of the legs of a right triangle are 5 feet and 12 feet. What is the length, in feet, of the third side of the triangle?**

A. 8.5
B. 10.9
C. 13
D. 17

203. A support wire is attached to the top of a 60 meter (m) tower and is tied to the ground 25 m from the base of the tower. This situation can be modeled using the right triangle below. How long is the support wire?



A. 54 meters
B. 65 meters
C. 85 meters
D. 4,225 meters

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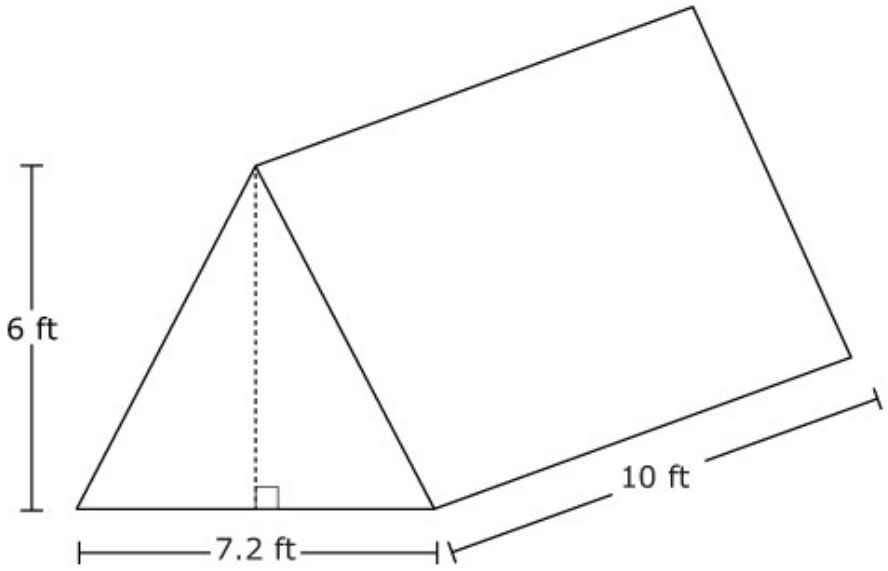
204. A tent is shaped like an isosceles triangular prism with the dimensions shown. What is the total surface area, to the nearest tenth of a square foot, of the tent, including the ground floor?



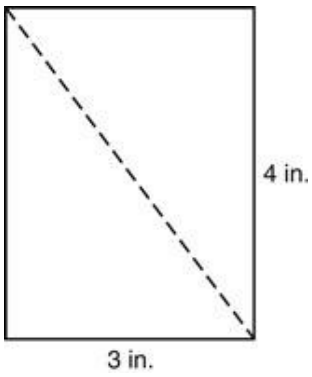
A. $177.2\ ft^2$

B. $211.2\ ft^2$

C. $255.1\ ft^2$

D. $302.6\ ft^2$

205. **What is the length of the diagonal of this rectangle?**



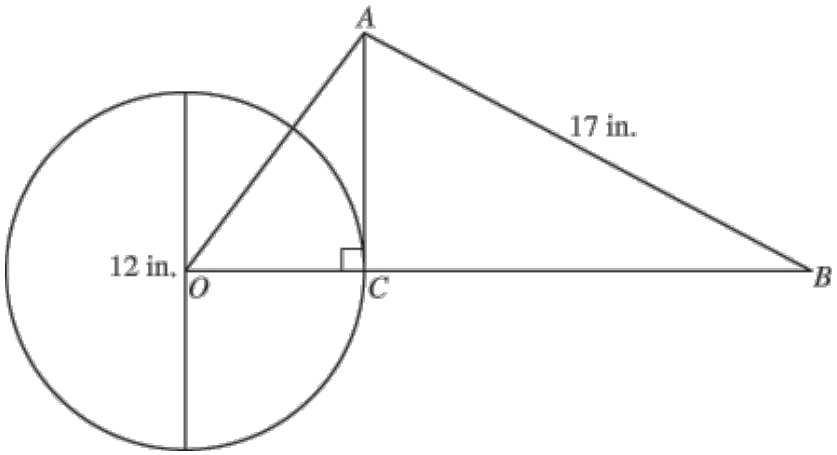
A. 3.5 inches

B. 3.7 inches

C. 5 inches

D. 7 inches

206. Triangle *AOC* intersects a circle with center *O*. Side *AO* is 10 inches (in.) and the diameter of the circle is 12 in., as shown below.



What is the length of $\overline{BC}$?

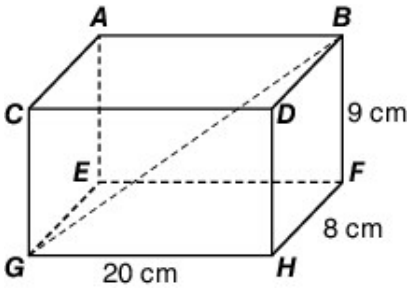
A. 10 inches

B. 14 inches

C. 15 inches

D. 16 inches

207. What is the approximate length of $\overline{BG}$ in the right rectangular prism below?



A. 16.0 cm

B. 21.5 cm

C. 23.3 cm

D. 26.2 cm

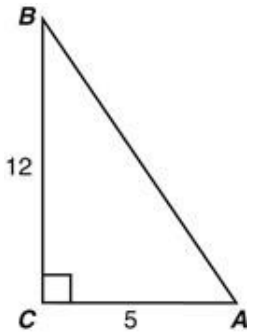
208. **The lengths of the legs of a right triangle are 7.5 inches and 10.0 inches. What is the length of the hypotenuse of this right triangle?**

A. 2.5 in.
B. 6.6 in.
C. 12.5 in.
D. 17.5 in.

209. Right triangle *DEF* has an area of 30 square centimeters (cm^2). Segment *DE* has a length of 5 cm, and segment *EF* is the hypotenuse. What is the distance between point *E* and point *F*?

A. 12 cm
B. 13 cm
C. 17 cm
D. 25 cm

210. **What conclusion can be drawn by applying the Pythagorean theorem to this triangle?**



A. $\angle CAB$ is a right angle
B. $\triangle ABC$ is isosceles
C. $AB = 13$
D. $AB = 17$

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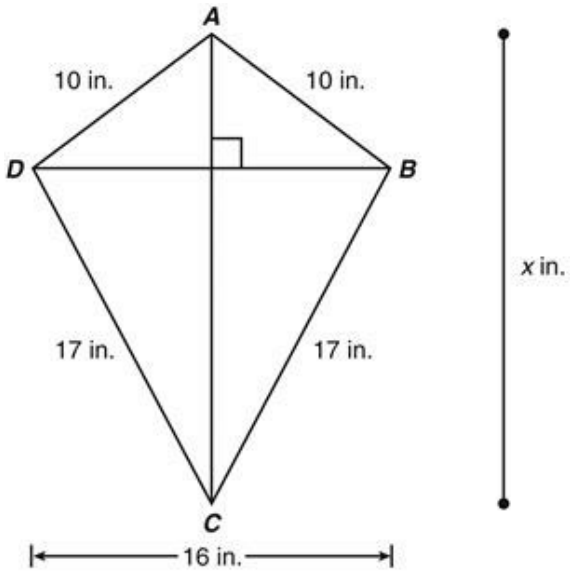
211. **In Kite *ABCD* below, $AB = AD = 10$ inches, $CB = CD = 17$ inches, and $DB = 16$ inches.**



What is the length of $\overline{AC}$?

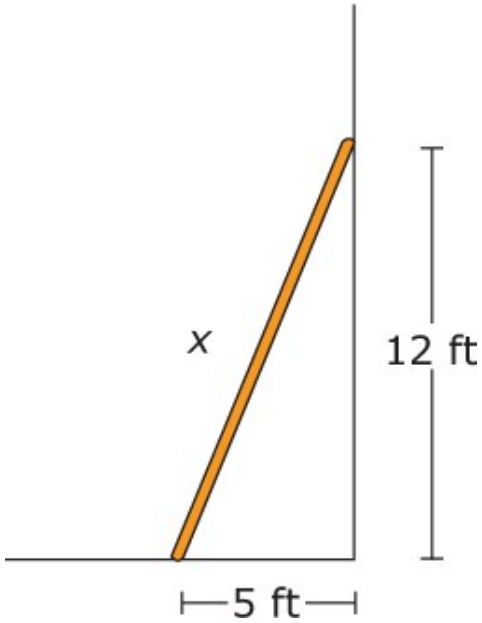
A. 11 inches

B. $\sqrt{389}$ inches

C. 21 inches

D. $(\sqrt{164} + \sqrt{353})$ inches

212. One end of a pole is placed 5 feet (ft) from a wall, and the other end touches the wall 12 ft from the ground.



How long is the pole?

A. 7 ft

B. 13 ft

C. 15 ft

D. 17 ft