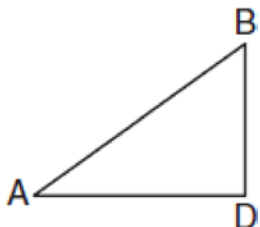


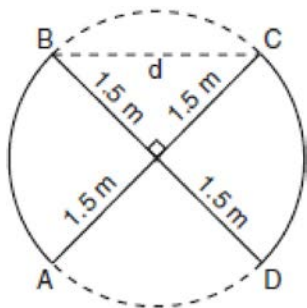
G.G.48: Pythagorean Theorem: Investigate, justify, and apply the Pythagorean theorem and its converse

- 1 In the diagram below of $\triangle ADB$, $m\angle BDA = 90$, $AD = 5\sqrt{2}$, and $AB = 2\sqrt{15}$.



What is the length of \overline{BD} ?

- 1) $\sqrt{10}$
 - 2) $\sqrt{20}$
 - 3) $\sqrt{50}$
 - 4) $\sqrt{110}$
- 2 An overhead view of a revolving door is shown in the accompanying diagram. Each panel is 1.5 meters wide.



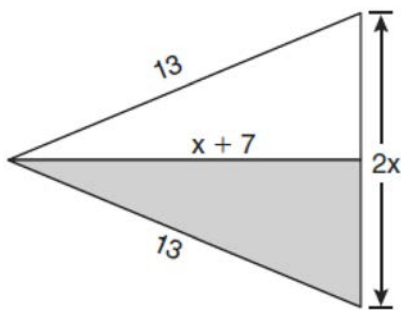
What is the approximate width of d , the opening from B to C ?

- 1) 1.50 m
 - 2) 1.73 m
 - 3) 3.00 m
 - 4) 2.12 m
- 3 Which set of numbers does *not* represent the sides of a right triangle?
- 1) {6, 8, 10}
 - 2) {8, 15, 17}
 - 3) {8, 24, 25}
 - 4) {15, 36, 39}
- 4 Which set of numbers could *not* represent the lengths of the sides of a right triangle?
- 1) {1, 3, $\sqrt{10}$ }
 - 2) {2, 3, 4}
 - 3) {3, 4, 5}
 - 4) {8, 15, 17}
- 5 The set of integers {3, 4, 5} is a Pythagorean triple. Another such set is
- 1) {6, 7, 8}
 - 2) {6, 8, 12}
 - 3) {6, 12, 13}
 - 4) {8, 15, 17}
- 6 Which set of numbers could be the lengths of the sides of a right triangle?
- 1) {10, 24, 26}
 - 2) {12, 16, 30}
 - 3) {3, 4, 6}
 - 4) {4, 7, 8}

- 7 Which set of numbers could represent the lengths of the sides of a right triangle?

1) $\{2, 3, 4\}$
2) $\{5, 9, 13\}$
3) $\{7, 7, 12\}$
4) $\{8, 15, 17\}$

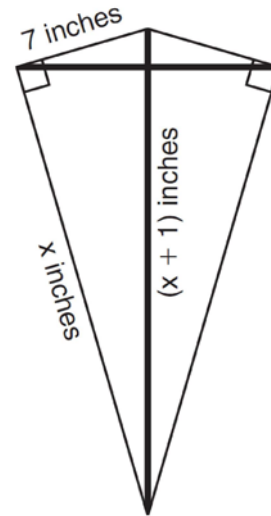
- 8 The diagram below shows a pennant in the shape of an isosceles triangle. The equal sides each measure 13, the altitude is $x + 7$, and the base is $2x$.



What is the length of the base?

1) 5
2) 10
3) 12
4) 24

- 9 As shown in the diagram below, a kite needs a vertical and a horizontal support bar attached at opposite corners. The upper edges of the kite are 7 inches, the side edges are x inches, and the vertical support bar is $(x + 1)$ inches.



What is the measure, in inches, of the vertical support bar?

1) 23
2) 24
3) 25
4) 26

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Answer Section

1 ANS: 1 REF: 011016ge

2 ANS: 4 REF: 010403b

3 ANS: 3
 $8^2 + 24^2 \neq 25^2$

REF: 011111ge

4 ANS: 2
 $2^2 + 3^2 \neq 4^2$

REF: 011316ge

5 ANS: 4 REF: 060009a

6 ANS: 1 REF: 010827a

7 ANS: 4
 $8^2 + 15^2 = 17^2$

REF: 081418ge

8 ANS: 2
 $x^2 + (x + 7)^2 = 13^2$

$$x^2 + x^2 + 7x + 7x + 49 = 169$$

$$2x^2 + 14x - 120 = 0$$

$$x^2 + 7x - 60 = 0$$

$$(x + 12)(x - 5) = 0$$

$$x = 5$$

$$2x = 10$$

REF: 061024ge

9 ANS: 3
 $x^2 + 7^2 = (x + 1)^2 \quad x + 1 = 25$

$$x^2 + 49 = x^2 + 2x + 1$$

$$48 = 2x$$

$$24 = x$$

REF: 081127ge