

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

1. Is a triangle with sides of length 6 cm, 8 cm, and 10 cm a right triangle?
2. Is a triangle with sides of length 10 cm, 24 cm, and 27 cm a right triangle?
3. Is a triangle with sides of length 5 cm, 12 cm, and 13 cm a right triangle?
4. Use a calculator to find out whether a triangle with sides of lengths 8, 10, and 15 is a right triangle.
5. Which set of three numbers represent the lengths of the sides of a right triangle?
 [A] 4, 5, 9 [B] 6, 8, 10 [C] 8, 9, 10
 [D] 9, 16, 25 [E] 6, 7, 8
6. Which set of side lengths cannot form a right triangle?
 [A] 10 mm, 24 mm, 26 mm
 [B] $\frac{5}{2}$ mm, 6 mm, $\frac{13}{2}$ mm
 [C] 6 mm, 12 mm, 13 mm
 [D] 5 mm, 12 mm, 13 mm

7. Which set of side lengths cannot form a right triangle?
 [A] 12 mm, 16 mm, 20 mm
 [B] 24 mm, 32 mm, 40 mm
 [C] 6 mm, 8 mm, 10 mm
 [D] 13 mm, 16 mm, 20 mm
8. Which set of side lengths cannot form a right triangle?
 [A] 18 mm, 24 mm, 30 mm
 [B] $\frac{9}{2}$ mm, 6 mm, $\frac{15}{2}$ mm
 [C] 10 mm, 12 mm, 15 mm
 [D] 9 mm, 12 mm, 15 mm
9. Which set of the three numbers do *not* represent the lengths of the sides of a right triangle?
 [A] 9, 12, 15 [B] 12, 16, 20
 [C] 7, 24, 25 [D] 7, 7, 14
 [E] 5, 12, 13
10. Which of the following could NOT be the lengths of the sides of a right triangle?
 [A] 5 in., 12 in., 14 in.
 [B] 1.5 m, 2 m, 2.5 m
 [C] 9 ft, 12 ft, 15 ft
 [D] 4 cm, 7.5 cm, 8.5 cm

[1] yes

[2] no

[3] yes

[4] It is not a right triangle since $8^2 + 10^2 \neq 15^2$.

[5] B

[6] C

[7] D

[8] C

[9] D

[10] A