

Perimeter of Right-angled Shapes



Find a missing edge using Pythagoras' theorem, then calculate the perimeter by adding all sides.

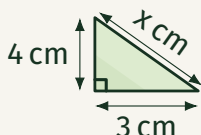
Name _____

Date _____

Find the missing side first

Use $a^2 + b^2 = c^2$ (or $c^2 - a^2 = b^2$) to find the missing edge. Then add all sides to find the perimeter.

Worked example Find the missing side, then the perimeter.



Step 1: Find x using $a^2 + b^2 = c^2$

$$3^2 + 4^2 = x^2$$

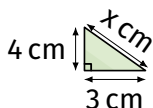
$$9 + 16 = x^2$$

$$x = 5 \text{ cm}$$

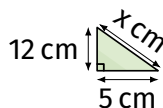
Step 2: Find the perimeter

$$\text{Perimeter} = 3 + 4 + 5 = 12 \text{ cm}$$

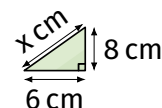
1. Find x , then perimeter.



2. Find x , then perimeter.



3. Find x , then perimeter.

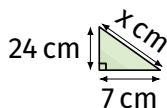


Solution: $x = 5$; Perimeter = 12 cm

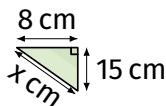
Solution: $x = 13$; Perimeter = 30 cm

Solution: $x = 10$; Perimeter = 24 cm

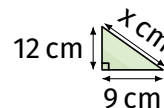
4. Find x , then perimeter.



5. Find x , then perimeter.



6. Find x , then perimeter.



Solution: $x = 25$; Perimeter = 56 cm

Solution: $x = 17$; Perimeter = 40 cm

Solution: $x = 15$; Perimeter = 36 cm

7. Rectangle: width 5 m, diagonal 13 m. Find length, then perimeter.

8. Right triangle: legs 6 cm and 8 cm. Find hypotenuse, then perimeter.

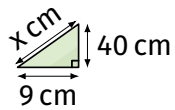
9. Rectangle: 7 m $\times$ 24 m. Find diagonal, then perimeter.

Solution: Length = 12 m; Perimeter = 34 m

Solution: Hyp = 10 cm; Perimeter = 24 cm

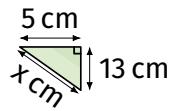
Solution: Diagonal = 25 m; Perimeter = 62 m

10. Find x , then perimeter.



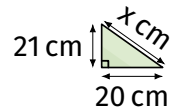
Solution: $x = 41$; Perimeter = 90 cm

11. Find x , then perimeter.



Solution: $x = 12$; Perimeter = 30 cm

12. Find x , then perimeter.



Solution: $x = 29$; Perimeter = 70 cm

13. Right triangle: legs 8 m and 15 m. Find hypotenuse, then perimeter to 1 d.p.

Solution: Hyp = 17 m; Perimeter = 40 m

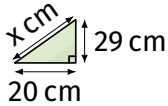
14. Rectangle: width 10 m, hypotenuse 26 m. Find length, then perimeter.

Solution: Length = 24 m; Perimeter = 68 m

15. Triangle: legs 12 cm and 35 cm. Find hypotenuse, then perimeter.

Solution: Hyp = 37 cm; Perimeter = 84 cm

16. Find x , then perimeter.



Solution: $x = 31$; Perimeter = 80 cm

17. Right triangle: hyp 10 cm, one leg 6 cm. Find other leg, then perimeter to 1 d.p.

Solution: Other leg = 8 cm; Perimeter = 24 cm

18. Rectangle: area 42 m^2 , one side 6 m. Find diagonal, then perimeter.

Solution: Diagonal = $\sqrt{85} \approx 9.2 \text{ m}$; Perimeter = 26 m