



Perimeter of compound shapes using Pythagoras' theory

Mana Maths

Start Tasks



Use Pythagoras' theorem to find the missing side, then add all three sides to find the perimeter.

1. A right-angled garden bed has legs 3 m and 4 m. Find the missing side, then find the perimeter.

2. A right-angled sail has legs 6 m and 8 m. Find the missing side, then find the perimeter.

3.



Find x , then find the perimeter.

4. A triangular flag has legs 9 cm and 12 cm. Find the missing side, then find the perimeter.

5. A kite panel has legs 8 cm and 15 cm. Find the missing side, then find the perimeter.

6. A right-angled tablecloth corner has legs 12 cm and 16 cm. Find the missing side, then find the perimeter.

7. A road sign is a right triangle with legs 10 cm and 24 cm. Find the missing side, then find the perimeter.



8.

Find x , then find the perimeter.

9. A tent side panel is a right triangle with legs 15 m and 20 m. Find the missing side, then find the perimeter.

Start Tasks — Answers



Use Pythagoras' theorem to find the missing side, then add all three sides to find the perimeter.

1. Right-angled garden bed, legs 3 m and 4 m.

Solution

$$x^2 = 3^2 + 4^2 = 25, \text{ so } x = 5 \text{ m}$$

$$P = 3 + 4 + 5 = 12 \text{ m}$$

2. Right-angled sail, legs 6 m and 8 m.

Solution

$$x^2 = 6^2 + 8^2 = 100, \text{ so } x = 10 \text{ m}$$

$$P = 6 + 8 + 10 = 24 \text{ m}$$

3.



Solution

$$x^2 = 5^2 + 12^2 = 169$$

$$\text{so } x = 13$$

$$P = 5 + 12 + 13 = 30$$

4. Triangular flag, legs 9 cm and 12 cm.

Solution

$$x^2 = 9^2 + 12^2 = 225, \text{ so } x = 15 \text{ cm}$$

$$P = 9 + 12 + 15 = 36 \text{ cm}$$

Start Tasks



Use Pythagoras' theorem to find the missing side, then add all three sides to find the perimeter.

10. A bookend is a right triangle with legs 7 cm and 24 cm. Find the missing side, then find the perimeter.

11. A skateboard ramp side is a right triangle with legs 20 cm and 21 cm. Find the missing side, then find the perimeter.

12. A roof brace is a right triangle with legs 16 m and 30 m. Find the missing side, then find the perimeter.

13. A gate brace is a right triangle with legs 21 cm and 28 cm. Find the missing side, then find the perimeter.

14.



Find x , then find the perimeter.

15. A zipline support is a right triangle with legs 9 m and 40 m. Find the missing side, then find the perimeter.

16. A ramp is a right triangle with hypotenuse 13 m and one leg 5 m. Find the other leg, then find the perimeter.

17. A sandwich-board sign is a right triangle with hypotenuse 25 cm and one leg 7 cm. Find the other leg, then find the perimeter.

18. An umbrella panel is a right triangle with hypotenuse 17 cm and one leg 8 cm. Find the other leg, then find the perimeter.

Start Tasks — Answers



Use Pythagoras' theorem to find the missing side, then add all three sides to find the perimeter.

5. Kite panel, legs 8 cm and 15 cm.

Solution

$$x^2 = 8^2 + 15^2 = 289, \text{ so } x = 17 \text{ cm}$$

$$P = 8 + 15 + 17 = 40 \text{ cm}$$

6. Tablecloth corner, legs 12 cm and 16 cm.

Solution

$$x^2 = 12^2 + 16^2 = 400, \text{ so } x = 20 \text{ cm}$$

$$P = 12 + 16 + 20 = 48 \text{ cm}$$

7. Road sign, legs 10 cm and 24 cm.

Solution

$$x^2 = 10^2 + 24^2 = 676, \text{ so } x = 26 \text{ cm}$$

$$P = 10 + 24 + 26 = 60 \text{ cm}$$

8.



Solution

$$x^2 = 18^2 + 24^2 = 900$$

$$\text{so } x = 30$$

$$P = 18 + 24 + 30 = 72$$

Start Tasks



Use Pythagoras' theorem to find the missing side, then add all three sides to find the perimeter.

19. A pennant flag is a right triangle with hypotenuse 15 cm and one leg 9 cm. Find the other leg, then find the perimeter.

20. A shelf bracket is a right triangle with hypotenuse 10 cm and one leg 6 cm. Find the other leg, then find the perimeter.

21. A wheelchair ramp side is a right triangle with legs 33 m and 44 m. Find the missing side, then find the perimeter.

22. A TV stand leg brace is a right triangle with legs 12 cm and 35 cm. Find the missing side, then find the perimeter.

23. A gymnastics mat corner is a right triangle with legs 30 cm and 40 cm. Find the missing side, then find the perimeter.

24.



Find x , then find the perimeter.

25. A kite string brace is a right triangle with hypotenuse 29 m and one leg 20 m. Find the other leg, then find the perimeter.

26. A picture-frame support is a right triangle with hypotenuse 34 cm and one leg 16 cm. Find the other leg, then find the perimeter.

27. A park path shortcut cuts across a right-angled corner with legs 20 m and 48 m. Find the missing side, then find the perimeter of the triangle.

Start Tasks — Answers



Use Pythagoras' theorem to find the missing side, then add all three sides to find the perimeter.

9. Tent side panel, legs 15 m and 20 m.

Solution

$$x^2 = 15^2 + 20^2 = 625, \text{ so } x = 25 \text{ m}$$

$$P = 15 + 20 + 25 = 60 \text{ m}$$

10. Bookend, legs 7 cm and 24 cm.

Solution

$$x^2 = 7^2 + 24^2 = 625, \text{ so } x = 25 \text{ cm}$$

$$P = 7 + 24 + 25 = 56 \text{ cm}$$

11. Skateboard ramp side, legs 20 cm and 21 cm.

Solution

$$x^2 = 20^2 + 21^2 = 841, \text{ so } x = 29 \text{ cm}$$

$$P = 20 + 21 + 29 = 70 \text{ cm}$$

12. Roof brace, legs 16 m and 30 m.

Solution

$$x^2 = 16^2 + 30^2 = 1156, \text{ so } x = 34 \text{ m}$$

$$P = 16 + 30 + 34 = 80 \text{ m}$$

Start Tasks — Answers



Use Pythagoras' theorem to find the missing side, then add all three sides to find the perimeter.

13. Gate brace, legs 21 cm and 28 cm.

Solution

$$x^2 = 21^2 + 28^2 = 1225, \text{ so } x = 35 \text{ cm}$$

$$P = 21 + 28 + 35 = 84 \text{ cm}$$

14.



Solution

$$x^2 = 24^2 + 32^2 = 1600$$

$$\text{so } x = 40$$

$$P = 24 + 32 + 40 = 96$$

15. Zipline support, legs 9 m and 40 m.

Solution

$$x^2 = 9^2 + 40^2 = 1681, \text{ so } x = 41 \text{ m}$$

$$P = 9 + 40 + 41 = 90 \text{ m}$$

16. Ramp, hypotenuse 13 m, one leg 5 m.

Solution

$$x^2 = 13^2 - 5^2 = 144, \text{ so } x = 12 \text{ m}$$

$$P = 5 + 12 + 13 = 30 \text{ m}$$

Start Tasks — Answers



Use Pythagoras' theorem to find the missing side, then add all three sides to find the perimeter.

17. Sandwich-board sign, hypotenuse 25 cm, one leg 7 cm.

Solution

$$x^2 = 25^2 - 7^2 = 576, \text{ so } x = 24 \text{ cm}$$

$$P = 7 + 24 + 25 = 56 \text{ cm}$$

18. Umbrella panel, hypotenuse 17 cm, one leg 8 cm.

Solution

$$x^2 = 17^2 - 8^2 = 225, \text{ so } x = 15 \text{ cm}$$

$$P = 8 + 15 + 17 = 40 \text{ cm}$$

19. Pennant flag, hypotenuse 15 cm, one leg 9 cm.

Solution

$$x^2 = 15^2 - 9^2 = 144, \text{ so } x = 12 \text{ cm}$$

$$P = 9 + 12 + 15 = 36 \text{ cm}$$

20. Shelf bracket, hypotenuse 10 cm, one leg 6 cm.

Solution

$$x^2 = 10^2 - 6^2 = 64, \text{ so } x = 8 \text{ cm}$$

$$P = 6 + 8 + 10 = 24 \text{ cm}$$

Start Tasks — Answers



Use Pythagoras' theorem to find the missing side, then add all three sides to find the perimeter.

21. Wheelchair ramp side, legs 33 m and 44 m.

Solution

$$x^2 = 33^2 + 44^2 = 3025, \text{ so } x = 55 \text{ m}$$

$$P = 33 + 44 + 55 = 132 \text{ m}$$

22. TV-stand leg brace, legs 12 cm and 35 cm.

Solution

$$x^2 = 12^2 + 35^2 = 1369, \text{ so } x = 37 \text{ cm}$$

$$P = 12 + 35 + 37 = 84 \text{ cm}$$

23. Gymnastics mat corner, legs 30 cm and 40 cm.

Solution

$$x^2 = 30^2 + 40^2 = 2500, \text{ so } x = 50 \text{ cm}$$

$$P = 30 + 40 + 50 = 120 \text{ cm}$$

24.



Solution

$$x^2 = 15^2 + 36^2 = 1521$$

$$\text{so } x = 39$$

$$P = 15 + 36 + 39 = 90$$

Start Tasks — Answers



Use Pythagoras' theorem to find the missing side, then add all three sides to find the perimeter.

25. Kite-string brace, hypotenuse 29 m, one leg 20 m.

Solution

$$x^2 = 29^2 - 20^2 = 441, \text{ so } x = 21 \text{ m}$$

$$P = 20 + 21 + 29 = 70 \text{ m}$$

26. Picture-frame support, hypotenuse 34 cm, one leg 16 cm.

Solution

$$x^2 = 34^2 - 16^2 = 900, \text{ so } x = 30 \text{ cm}$$

$$P = 16 + 30 + 34 = 80 \text{ cm}$$

27. Park-path shortcut across a right corner, legs 20 m and 48 m.

Solution

$$x^2 = 20^2 + 48^2 = 2704, \text{ so } x = 52 \text{ m}$$

$$P = 20 + 48 + 52 = 120 \text{ m}$$

Build Tasks



Use Pythagoras' theorem to find x , then add every side of the shape to find its perimeter.

1.



Square with a triangular roof. Find x , then the shape's perimeter.

2.



Square with a triangular roof. Find x , then the shape's perimeter.

3.



Square with a triangular roof. Find x , then the shape's perimeter.

4.



Square with a triangular roof. Find x , then the shape's perimeter.

5.



Square with a triangular roof. Find x , then the shape's perimeter.

6.



Square with a triangular roof. Find x , then the shape's perimeter.

7.



Square with a triangular roof. Find x , then the shape's perimeter.

8.



Square with a triangular roof. Find x , then the shape's perimeter.

9.



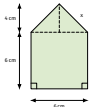
Square with a triangular roof. Find x , then the shape's perimeter.

Build Tasks — Answers



Find x with Pythagoras (roof/cap run is half the base), then add every outer edge.

1.



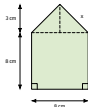
Solution

$$x^2 = 3^2 + 4^2 = 25$$

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

$$P = 3(6) + 2(5) = 28$$

2.



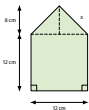
Solution

$$x^2 = 4^2 + 3^2 = 25$$

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

$$P = 3(8) + 2(5) = 34$$

3.



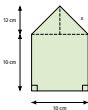
Solution

$$x^2 = 6^2 + 8^2 = 100$$

$$\text{so } x = 10$$

$$P = 3(12) + 2(10) = 56$$

4.



Solution

$$x^2 = 5^2 + 12^2 = 169$$

$$\text{so } x = 13$$

$$P = 3(10) + 2(13) = 56$$

Build Tasks



Use Pythagoras' theorem to find x , then add every side of the shape to find its perimeter.

10.



Rectangle with a right triangle on top.
Find x , then the shape's perimeter.

11.



Rectangle with a right triangle on top.
Find x , then the shape's perimeter.

12.



Rectangle with a right triangle on top.
Find x , then the shape's perimeter.

13.



Rectangle with a right triangle on top.
Find x , then the shape's perimeter.

14.



Rectangle with a right triangle on top.
Find x , then the shape's perimeter.

15.



Rectangle with a right triangle on top.
Find x , then the shape's perimeter.

16.



Rectangle with a right triangle on top.
Find x , then the shape's perimeter.

17.



Rectangle with a right triangle on top.
Find x , then the shape's perimeter.

18.



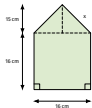
Rectangle with a right triangle on top.
Find x , then the shape's perimeter.

Build Tasks — Answers



Find x with Pythagoras (roof/cap run is half the base), then add every outer edge.

5.



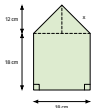
Solution

$$x^2 = 8^2 + 15^2 = 289$$

$$\text{so } x = 17$$

$$P = 3(16) + 2(17) = 82$$

6.



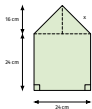
Solution

$$x^2 = 9^2 + 12^2 = 225$$

$$\text{so } x = 15$$

$$P = 3(18) + 2(15) = 84$$

7.



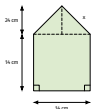
Solution

$$x^2 = 12^2 + 16^2 = 400$$

$$\text{so } x = 20$$

$$P = 3(24) + 2(20) = 112$$

8.



Solution

$$x^2 = 7^2 + 24^2 = 625$$

$$\text{so } x = 25$$

$$P = 3(14) + 2(25) = 92$$

Build Tasks



Use Pythagoras' theorem to find x , then add every side of the shape to find its perimeter.

19.



Parallelogram with a triangular cap.
Find x , then the cap's perimeter (its 3 sides).

20.



Parallelogram with a triangular cap.
Find x , then the cap's perimeter (its 3 sides).

21.



Parallelogram with a triangular cap.
Find x , then the cap's perimeter (its 3 sides).

22.



Parallelogram with a triangular cap.
Find x , then the cap's perimeter (its 3 sides).

23.



Parallelogram with a triangular cap.
Find x , then the cap's perimeter (its 3 sides).

24.



Parallelogram with a triangular cap.
Find x , then the cap's perimeter (its 3 sides).

25.



Parallelogram with a triangular cap.
Find x , then the cap's perimeter (its 3 sides).

26.



Parallelogram with a triangular cap.
Find x , then the cap's perimeter (its 3 sides).

27.



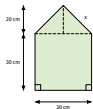
Parallelogram with a triangular cap.
Find x , then the cap's perimeter (its 3 sides).

Build Tasks — Answers



Find x with Pythagoras (roof/cap run is half the base), then add every outer edge.

9.



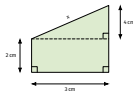
Solution

$$x^2 = 15^2 + 20^2 = 625$$

$$\text{so } x = 25$$

$$P = 3(30) + 2(25) = 140$$

10.



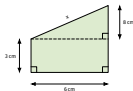
Solution

$$x^2 = 3^2 + 4^2 = 25$$

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

$$P = 3 + 2 + (2 + 4) + 5 = 16$$

11.



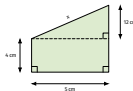
Solution

$$x^2 = 6^2 + 8^2 = 100$$

$$\text{so } x = 10$$

$$P = 6 + 3 + (3 + 8) + 10 = 30$$

12.



Solution

$$x^2 = 5^2 + 12^2 = 169$$

$$\text{so } x = 13$$

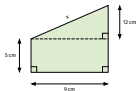
$$P = 5 + 4 + (4 + 12) + 13 = 38$$

Build Tasks — Answers



Find x with Pythagoras (roof/cap run is half the base), then add every outer edge.

13.



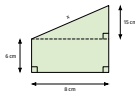
Solution

$$x^2 = 9^2 + 12^2 = 225$$

$$\text{so } x = 15$$

$$P = 9 + 5 + \\ (5+12) + 15 = 46$$

14.



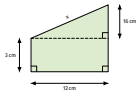
Solution

$$x^2 = 8^2 + 15^2 = 289$$

$$\text{so } x = 17$$

$$P = 8 + 6 + \\ (6+15) + 17 = 52$$

15.



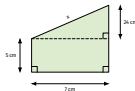
Solution

$$x^2 = 12^2 + 16^2 = 400$$

$$\text{so } x = 20$$

$$P = 12 + 3 + \\ (3+16) + 20 = 54$$

16.



Solution

$$x^2 = 7^2 + 24^2 = 625$$

$$\text{so } x = 25$$

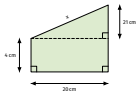
$$P = 7 + 5 + \\ (5+24) + 25 = 66$$

Build Tasks — Answers



Find x with Pythagoras (roof/cap run is half the base), then add every outer edge.

17.



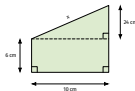
Solution

$$x^2 = 20^2 + 21^2 = 841$$

$$\text{so } x = 29$$

$$P = 20 + 4 + (4+21) + 29 = 78$$

18.



Solution

$$x^2 = 10^2 + 24^2 = 676$$

$$\text{so } x = 26$$

$$P = 10 + 6 + (6+24) + 26 = 72$$

19.



Solution

half base = 4

$$x^2 = 4^2 + 3^2 = 25,$$

$$x = 5$$

Cap

$$P = 8 + 2(5) = 18$$

20.



Solution

half base = 3

$$x^2 = 3^2 + 4^2 = 25,$$

$$x = 5$$

Cap

$$P = 6 + 2(5) = 16$$

Build Tasks — Answers



Find x with Pythagoras (roof/cap run is half the base), then add every outer edge.

21.



Solution

half base = 8

$$x^2 = 8^2 + 6^2 = 100,$$

$$x = 10$$

Cap

$$P = 16 + 2(10) = 36$$

22.



Solution

half base = 5

$$x^2 = 5^2 + 12^2 = 169,$$

$$x = 13$$

Cap

$$P = 10 + 2(13) = 36$$

23.



Solution

half base = 12

$$x^2 = 12^2 + 16^2 = 400,$$

$$x = 20$$

Cap

$$P = 24 + 2(20) = 64$$

24.



Solution

half base = 9

$$x^2 = 9^2 + 12^2 = 225,$$

$$x = 15$$

Cap

$$P = 18 + 2(15) = 48$$

Build Tasks — Answers



Find x with Pythagoras (roof/cap run is half the base), then add every outer edge.

25.



Solution

$$\begin{aligned}\text{half base} &= 7 \\ x^2 &= 7^2 + 24^2 = 625, \\ x &= 25\end{aligned}$$

Cap

$$P = 14 + 2(25) = 64$$

26.



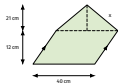
Solution

$$\begin{aligned}\text{half base} &= 15 \\ x^2 &= 15^2 + 8^2 = 289, \\ x &= 17\end{aligned}$$

Cap

$$P = 30 + 2(17) = 64$$

27.



Solution

$$\begin{aligned}\text{half base} &= 20 \\ x^2 &= 20^2 + 21^2 = 841, \\ x &= 29\end{aligned}$$

Cap

$$P = 40 + 2(29) = 98$$

Push Tasks



Use Pythagoras' theorem to find the missing length (rounding where needed), then find the total perimeter.

1.



Square with a triangular roof. Find x , then the shape's perimeter.

2.



Square with a triangular roof. Find x , then the shape's perimeter.

3.



Square with a triangular roof. Find x , then the shape's perimeter.

4.



Square with a triangular roof. Find x , then the shape's perimeter.

5.



Square with a triangular roof. Find x , then the shape's perimeter.

6.



Square with a triangular roof. Find x , then the shape's perimeter.

7.



Square with a triangular roof. Find x , then the shape's perimeter.

8.



Square with a triangular roof. Find x , then the shape's perimeter.

9.



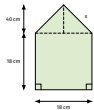
Square with a triangular roof. Find x to 1 d.p., then the shape's perimeter to 1 d.p.

Push Tasks — Answers



Find the missing length with Pythagoras (round where needed), then the total perimeter.

1.



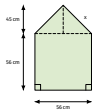
Solution

$$x^2 = 9^2 + 40^2 = 1681$$

$$\text{so } x = 41$$

$$P = 3(18) + 2(41) = 136 \text{ m}$$

2.



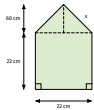
Solution

$$x^2 = 28^2 + 45^2 = 2809$$

$$\text{so } x = 53$$

$$P = 3(56) + 2(53) = 274 \text{ m}$$

3.



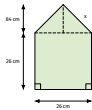
Solution

$$x^2 = 11^2 + 60^2 = 3721$$

$$\text{so } x = 61$$

$$P = 3(22) + 2(61) = 188 \text{ m}$$

4.



Solution

$$x^2 = 13^2 + 84^2 = 7225$$

$$\text{so } x = 85$$

$$P = 3(26) + 2(85) = 248 \text{ m}$$

Push Tasks



Use Pythagoras' theorem to find the missing length (rounding where needed), then find the total perimeter.

10.



Rectangle with a right triangle on top.
Find x , then the shape's perimeter.

11.



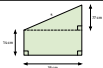
Rectangle with a right triangle on top.
Find x , then the shape's perimeter.

12.



Rectangle with a right triangle on top.
Find x , then the shape's perimeter.

13.



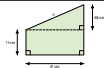
Rectangle with a right triangle on top.
Find x , then the shape's perimeter.

14.



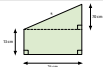
Rectangle with a right triangle on top.
Find x , then the shape's perimeter.

15.



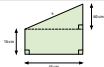
Rectangle with a right triangle on top.
Find x , then the shape's perimeter.

16.



Rectangle with a right triangle on top.
Find x , then the shape's perimeter.

17.



Rectangle with a right triangle on top.
Find x , then the shape's perimeter.

18.



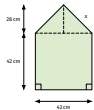
Rectangle with a right triangle on top.
Find x to 1 d.p., then the shape's perimeter to 1 d.p.

Push Tasks — Answers



Find the missing length with Pythagoras (round where needed), then the total perimeter.

5.



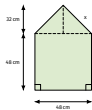
Solution

$$x^2 = 21^2 + 28^2 = 1225$$

$$\text{so } x = 35$$

$$P = 3(42) + 2(35) = 196 \text{ m}$$

6.



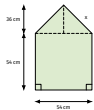
Solution

$$x^2 = 24^2 + 32^2 = 1600$$

$$\text{so } x = 40$$

$$P = 3(48) + 2(40) = 224 \text{ m}$$

7.



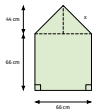
Solution

$$x^2 = 27^2 + 36^2 = 2025$$

$$\text{so } x = 45$$

$$P = 3(54) + 2(45) = 252 \text{ m}$$

8.



Solution

$$x^2 = 33^2 + 44^2 = 3025$$

$$\text{so } x = 55$$

$$P = 3(66) + 2(55) = 308 \text{ m}$$

Push Tasks



Use Pythagoras' theorem to find the missing length (rounding where needed), then find the total perimeter.

19. A cabin has a 16 m square base and a 6 m tall triangular roof centred on top. Find each sloped roof edge, then the total perimeter.

20. A fence panel is 9 m wide, 5 m tall on the short side, rising 12 m higher on the tall side. Find the sloped top edge, then the perimeter.

21. An awning frame is a 16 m wide parallelogram with a 15 m tall triangular cap on top. Find each sloped cap edge, then the cap's perimeter.

22. A cabin has a 14 m square base and a 5 m tall triangular roof centred on top. Find each roof edge (1 d.p.), then the perimeter (1 d.p.).

23. A ramp side is 4 m wide, 2 m tall on the short side, rising 7 m higher on the tall side. Find the sloped edge (1 d.p.), then the perimeter (1 d.p.).

24. A cabin has a 40 m square base and a 21 m tall triangular roof centred on top. Find each sloped roof edge, then the total perimeter.

25. A fence panel is 65 m wide, 18 m tall on the short side, rising 72 m higher on the tall side. Find the sloped top edge, then the perimeter.

26. An awning frame is a 48 m wide parallelogram with a 45 m tall triangular cap on top. Find each sloped cap edge, then the cap's perimeter.

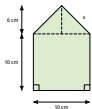
27. An awning frame is a 10 m wide parallelogram with a 6 m tall triangular cap on top. Find each cap edge (1 d.p.), then the cap's perimeter (1 d.p.).

Push Tasks — Answers



Find the missing length with Pythagoras (round where needed), then the total perimeter.

9.



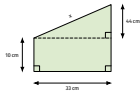
Solution

$$x^2 = 5^2 + 6^2 = 61$$

$$x = \sqrt{61} \approx 7.81$$

$$P = 3(10) + 2(7.81) \approx 45.6 \text{ m}$$

10.



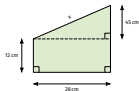
Solution

$$x^2 = 33^2 + 44^2 = 3025$$

$$\text{so } x = 55$$

$$P = 33 + 10 + (10+44) + 55 = 152 \text{ m}$$

11.



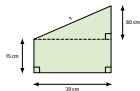
Solution

$$x^2 = 28^2 + 45^2 = 2809$$

$$\text{so } x = 53$$

$$P = 28 + 12 + (12+45) + 53 = 150 \text{ m}$$

12.



Solution

$$x^2 = 39^2 + 80^2 = 7921$$

$$\text{so } x = 89$$

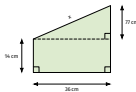
$$P = 39 + 15 + (15+80) + 89 = 238 \text{ m}$$

Push Tasks — Answers



Find the missing length with Pythagoras (round where needed), then the total perimeter.

13.



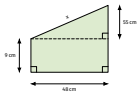
Solution

$$x^2 = 36^2 + 77^2 = 7225$$

$$\text{so } x = 85$$

$$P = 36 + 14 + (14+77) + 85 = 226 \text{ m}$$

14.



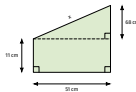
Solution

$$x^2 = 48^2 + 55^2 = 5329$$

$$\text{so } x = 73$$

$$P = 48 + 9 + (9+55) + 73 = 194 \text{ m}$$

15.



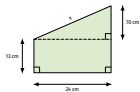
Solution

$$x^2 = 51^2 + 68^2 = 7225$$

$$\text{so } x = 85$$

$$P = 51 + 11 + (11+68) + 85 = 226 \text{ m}$$

16.



Solution

$$x^2 = 24^2 + 70^2 = 5476$$

$$\text{so } x = 74$$

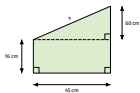
$$P = 24 + 13 + (13+70) + 74 = 194 \text{ m}$$

Push Tasks — Answers



Find the missing length with Pythagoras (round where needed), then the total perimeter.

17.



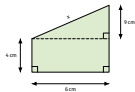
Solution

$$x^2 = 45^2 + 60^2 = 5625$$

$$\text{so } x = 75$$

$$P = 45 + 16 + (16+60) + 75 = 212 \text{ m}$$

18.



Solution

$$x^2 = 6^2 + 9^2 = 117$$

$$x = \sqrt{117} \approx 10.8$$

$$P \approx 6 + 4 + 13 + 10.8 = 33.8 \text{ m}$$

19. Cabin: 16 m square base, 6 m roof, centred.

Solution

$$\text{Half base } 8: x^2 = 8^2 + 6^2 = 100, \text{ so } x = 10 \text{ m}$$

$$P = 3(16) + 2(10) = 68 \text{ m}$$

20. Fence: 9 m wide, sides 5 m & 5+12 m.

Solution

$$x^2 = 9^2 + 12^2 = 225, \text{ so } x = 15 \text{ m}$$

$$\text{Tall side } 17; P = 9 + 5 + 17 + 15 = 46 \text{ m}$$

Push Tasks — Answers



Find the missing length with Pythagoras (round where needed), then the total perimeter.

21. Awning: 16 m parallelogram, 15 m cap.

Solution

Half base 8: $x^2 = 8^2 + 15^2 = 289$, so
 $x = 17$ m

Cap $P = 16 + 2(17) = 50$ m

22. Cabin: 14 m square base, 5 m roof (1 d.p.).

Solution

Half base 7: $x^2 = 7^2 + 5^2 = 74$, so
 $x \approx 8.6$ m

$P = 3(14) + 2(8.6) \approx 59.2$ m

23. Ramp: 4 m wide, sides 2 m & 2+7 m (1 d.p.).

Solution

$x^2 = 4^2 + 7^2 = 65$, so $x \approx 8.06$ m

Tall side 9; $P \approx 4 + 2 + 9 + 8.06 = 23.1$ m

24. Cabin: 40 m square base, 21 m roof, centred.

Solution

Half base 20: $x^2 = 20^2 + 21^2 = 841$, so
 $x = 29$ m

$P = 3(40) + 2(29) = 178$ m

Push Tasks — Answers



Find the missing length with Pythagoras (round where needed), then the total perimeter.

25. Fence: 65 m wide, sides 18 m & 18+72 m.

Solution

$x^2 = 65^2 + 72^2 = 9409$, so $x = 97$ m

Tall side 90;

$$P = 65 + 18 + 90 + 97 = 270 \text{ m}$$

26. Awning: 48 m parallelogram, 45 m cap.

Solution

Half base 24: $x^2 = 24^2 + 45^2 = 2601$, so $x = 51$ m

$$\text{Cap } P = 48 + 2(51) = 150 \text{ m}$$

27. Awning: 10 m parallelogram, 6 m cap (1 d.p.).

Solution

Half base 5: $x^2 = 5^2 + 6^2 = 61$, so

$x \approx 7.81$ m

$$\text{Cap } P = 10 + 2(7.81) \approx 25.6 \text{ m}$$