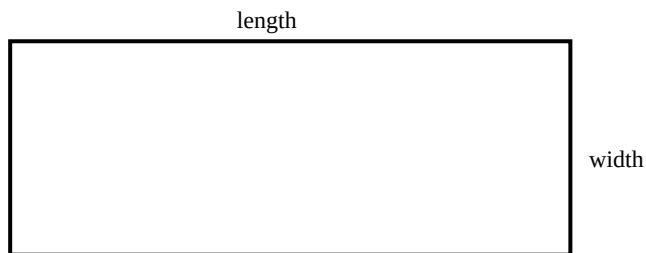


GRADE 8 MATHEMATICS

PERIMETER, AREA & COMPOSITE SHAPES



6 worksheets + 6 answer keys • Clean A4 printable format

Perimeter • 2D area • Triangles • Trapeziums • Composite figures • Real-life problems •
Challenge

Worksheet 1 - Perimeter of 2D Shapes

Show all working. Include units in every final answer.

1. Find the perimeter of a rectangle measuring 18 cm by 7 cm.
2. Find the perimeter of a square with side 12.5 cm.
3. A triangle has sides 8 cm, 11 cm and 15 cm. Find its perimeter.
4. A regular pentagon has side length 9 cm. Find its perimeter.
5. A regular hexagon has side length 7.5 cm. Find its perimeter.
6. A rectangular garden is 24 m long and 16 m wide. A 2 m wide gate is left open in the fence. How much fencing is needed?
7. A square playground has perimeter 96 m. Find its side length.
8. A triangle has perimeter 52 cm. Two sides are 17 cm and 14 cm. Find the third side.
9. A rectangle has perimeter 74 cm and length 23 cm. Find its width.
10. Challenge: A regular octagon has perimeter 72 cm. Find the length of each side.

Answer Key 1 - Perimeter of 2D Shapes

1. 50 cm.

2. 50 cm.

3. 34 cm.

4. 45 cm.

5. 45 cm.

6. 78 m.

7. 24 m.

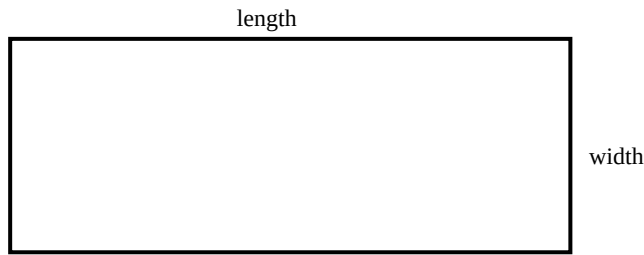
8. 21 cm.

9. 14 cm.

10. 9 cm.

Worksheet 2 - Area of Rectangles, Squares & Parallelograms

Show all working. Include units in every final answer.



1. Find the area of a rectangle measuring 18 cm by 7 cm.
2. Find the area of a square with side 12 cm.
3. A parallelogram has base 15 cm and perpendicular height 8 cm. Find its area.
4. A rectangle has area 252 cm^2 and width 12 cm. Find its length.
5. A square has area 324 cm^2 . Find its side length.
6. A garden is 25 m by 14 m. A 3 m by 5 m flower bed is removed. Find the remaining area.
7. A parallelogram has area 198 cm^2 and base 18 cm. Find its perpendicular height.
8. A floor is 8.5 m by 6 m. Find its area.
9. A square tile has side 20 cm. How many complete tiles are needed to cover a 2 m by 1.6 m floor?
10. Challenge: A rectangle has length 3 cm more than twice its width. Its area is 180 cm^2 . Find its dimensions.

Answer Key 2 - Area of Rectangles, Squares & Parallelograms

1. 126 cm².
2. 144 cm².
3. 120 cm².
4. 21 cm.
5. 18 cm.
6. 335 m².
7. 11 cm.
8. 51 m².
9. 80 tiles.
10. Width = 9 cm; length = 21 cm.

Worksheet 3 - Area of Triangles & Trapeziums

Show all working. Include units in every final answer.

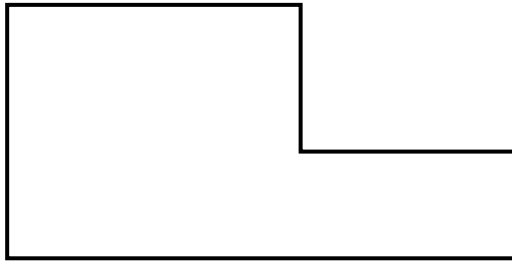
1. Find the area of a triangle with base 14 cm and perpendicular height 9 cm.
2. Find the area of a triangle with base 25 cm and height 12 cm.
3. A triangle has area 96 cm^2 and base 16 cm. Find its perpendicular height.
4. Find the area of a trapezium with parallel sides 10 cm and 18 cm and height 7 cm.
5. A trapezium has parallel sides 15 m and 25 m and height 8 m. Find its area.
6. A triangular garden has base 20 m and perpendicular height 13 m. Find its area.
7. A triangle and rectangle have the same base of 12 cm and the same height of 10 cm. Compare their areas.
8. A trapezium has area 180 cm^2 , parallel sides 14 cm and 22 cm. Find its height.
9. A triangular sign has area 0.9 m^2 and base 1.5 m. Find its height.
10. Challenge: A triangle has base $3x \text{ cm}$ and height 8 cm. Its area is 84 cm^2 . Find x .

Answer Key 3 - Area of Triangles & Trapeziums

1. 63 cm^2 .
2. 150 cm^2 .
3. 12 cm .
4. 98 cm^2 .
5. 160 m^2 .
6. 130 m^2 .
7. Triangle = 60 cm^2 ; rectangle = 120 cm^2 ; triangle is half.
8. 10 cm .
9. 1.2 m .
10. $x = 7$.

Worksheet 4 - Composite Shapes

Show all working. Include units in every final answer.



L-shaped composite figure

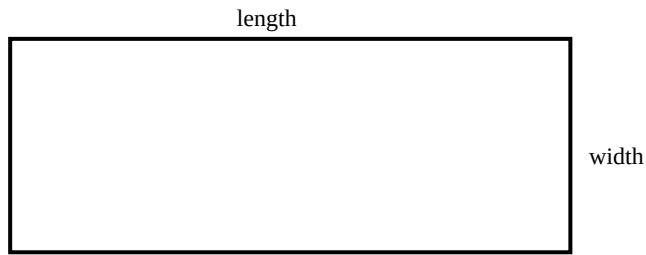
1. An L-shape is made from a 12 cm by 8 cm rectangle with a 5 cm by 3 cm rectangle removed. Find its area.
2. A 20 m by 12 m rectangle has a 6 m by 4 m corner removed. Find the remaining area.
3. A shape is made from a 10 cm by 6 cm rectangle and a 4 cm by 5 cm rectangle attached along a side. Find total area.
4. A T-shape consists of a 14 cm by 4 cm top bar and a 4 cm by 9 cm vertical bar. Find the area.
5. A composite garden is formed from a 16 m by 10 m rectangle and a 10 m by 6 m rectangle with no overlap. Find total area.
6. An L-shaped floor has outer dimensions 15 m by 12 m. A 7 m by 5 m rectangle is removed from one corner. Find the area.
7. A shape consists of a rectangle 18 cm by 10 cm with a semicircle of diameter 10 cm attached to one end. Find the area. Use $\pi = 3.14$.
8. A composite shape is made from two rectangles: 9 m by 5 m and 7 m by 4 m, joined without overlap. Find total area.
9. A 24 cm by 18 cm rectangle has a 10 cm by 6 cm rectangle removed from one corner. Find remaining area.
10. Challenge: An L-shaped region has outer area 300 m^2 . A rectangular section of 8 m by 6 m is removed. Find remaining area.

Answer Key 4 - Composite Shapes

1. 81 cm^2 .
2. 216 m^2 .
3. 80 cm^2 .
4. 92 cm^2 .
5. 220 m^2 .
6. 145 m^2 .
7. 258.5 cm^2 .
8. 73 m^2 .
9. 372 cm^2 .
10. 252 m^2 .

Worksheet 5 - Perimeter & Area in Real Life

Show all working. Include units in every final answer.



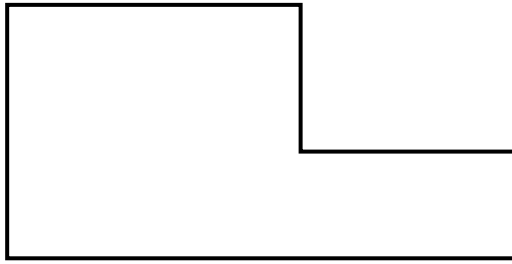
1. A rectangular room is 7 m by 5.5 m. Find its floor area and perimeter.
2. A square lawn has side 18 m. Find area and the length of fencing needed around it.
3. A rectangular swimming pool is 25 m by 12 m. Find its area and perimeter.
4. A triangular flower bed has base 8 m and height 5 m. Find the area. If edging costs \$6 per metre and the other two sides are 6 m and 7 m, find edging cost.
5. A rectangular wall is 8 m wide and 3 m high. A door 2 m by 1 m is not painted. Find paintable area.
6. A path 2 m wide surrounds a 20 m by 12 m rectangular garden. Find the area of the garden plus path.
7. A 10 m by 8 m room uses square tiles of side 0.5 m. How many tiles are needed?
8. A farmer has 120 m of fencing to enclose a rectangular pen with length 35 m. Find the width and area.
9. A 15 m by 10 m patio is enlarged by adding a 5 m wide strip along its 10 m side. Find the new area.
10. Challenge: A rectangular park is 60 m by 40 m. A 3 m wide path runs all around the inside edge. Find the area of the path.

Answer Key 5 - Perimeter & Area in Real Life

1. Area = 38.5 m^2 ; perimeter = 25 m.
2. Area = 324 m^2 ; fencing = 72 m.
3. Area = 300 m^2 ; perimeter = 74 m.
4. Area = 20 m^2 ; perimeter = 21 m; cost = \$126.
5. 22 m^2 .
6. 320 m^2 .
7. 320 tiles.
8. Width = 25 m; area = 875 m^2 .
9. 200 m^2 .
10. 564 m^2 .

Worksheet 6 - Area & Perimeter Challenge

Show all working. Include units in every final answer.



L-shaped composite figure

1. A rectangle has area 240 cm^2 and perimeter 64 cm. Find its dimensions.
2. A square and a rectangle have the same perimeter of 48 cm. The rectangle is 16 cm long. Find its width and compare their areas.
3. A right triangle has legs 9 cm and 12 cm. Find its area and perimeter.
4. A trapezium has parallel sides 12 cm and 20 cm and height 9 cm. Find area. If the other sides are 10 cm each, find perimeter.
5. An L-shaped floor is a 14 m by 11 m rectangle with a 5 m by 4 m corner removed. Find area and perimeter.
6. A circular garden has radius 7 m. Find its area and circumference using $\pi = 22/7$.
7. A rectangle is 4 cm longer than it is wide. Its area is 96 cm^2 . Find dimensions and perimeter.
8. A composite shape consists of a 12 m by 8 m rectangle and a triangle on top with base 12 m and height 5 m. Find total area.
9. A 30 m by 20 m field has a 4 m wide path around the outside. Find the total area including the path.
10. Final challenge: A rectangular garden has perimeter 100 m. Its length is 10 m greater than its width. Find dimensions and area.

Answer Key 6 - Area & Perimeter Challenge

1. 20 cm by 12 cm.
2. Width = 8 cm; rectangle area = 128 cm^2 ; square area = 144 cm^2 .
3. Area = 54 cm^2 ; hypotenuse = 15 cm; perimeter = 36 cm.
4. Area = 144 cm^2 ; perimeter = 52 cm.
5. Area = 134 m^2 ; perimeter = 50 m.
6. Area = 154 m^2 ; circumference = 44 m.
7. Width = 8 cm; length = 12 cm; perimeter = 40 cm.
8. Rectangle = 96 m^2 ; triangle = 30 m^2 ; total = 126 m^2 .
9. 38 m by 28 m = $1,064 \text{ m}^2$.
10. Width = 20 m; length = 30 m; area = 600 m^2 .