Year 8 area and perimeter worksheet

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Name: _____ Date: _____

Question 1

An L-shaped garden bed has the following side lengths, going clockwise from the top-left corner: 5 m, 2 m, 3 m, 4 m, 2 m, and 6 m. Find the perimeter of the garden bed.

Answer: _____

Question 2

(a) A circle has a radius of 7 cm. What is its diameter?

(b) A circle has a diameter of 30 m. What is its radius?

Answer: _____

Question 3

Find the area of a triangle with a base of 10 m and a perpendicular height of 6 m.

Answer: _____

Question 4

Find the area of a parallelogram with a base of 12 cm and a perpendicular height of 7 cm.

Answer: _____

Question 5

A circle has a radius of 9 cm. Find its circumference and area. Give both answers correct to one decimal place.

Answer: _____

Question 6

A composite shape is made by starting with a rectangle that is 10 cm wide and 8 cm tall, then removing a smaller rectangle from the top-right corner that is 4 cm wide and 3 cm tall. Find the area of the composite shape.

Answer: _____

Question 7

Convert:

(a) 3.6 km to metres

(b) 2450 mm to metres

(c) 78 cm to metres

Answer: _____

Question 8

Find the circumference of a circle with a diameter of 10 cm. Give your answer correct to one decimal place.

Answer: _____

Question 9

Convert:

(a) 3 m^2 to cm^2

(b) 45,000 m^2 to hectares

(c) 2500 mm^2 to cm^2

Answer: _____

Question 10

A trapezium has parallel sides of 8 cm and 14 cm. The perpendicular distance between the parallel sides is 5 cm. Find its area.

Answer: _____

Year 8 area and perimeter: answers and worked solutions

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Question 1

Key idea: The perimeter is the total distance around the outside of the shape. Add every side length together.

1. List all six side lengths: 5, 2, 3, 4, 2, 6 (in metres). 2. Add them:\ 5 + 2 + 3 + 4 + 2 + 6 = 22

Answer: The perimeter is 22 m.

Question 2

Answer: (a) 14 cm (b) 15 m

Question 3

Answer: 30 m² (½ × 10 × 6)

Question 4

Answer: 84 cm² (12 × 7)

Question 5

Key idea: Circumference C = 2π r and area A = π r², where r is the radius.

1. Write the radius: r = 9 cm. 2. Find the circumference:\ C = 2π r = 2 × π × 9 = 18π ≈ 56.5 cm 3. Find the area:\ A = π r² = π × 9² = 81π ≈ 254.5 cm²

Answer: Circumference ≈ 56.5 cm, Area ≈ 254.5 cm²

Question 6

Key idea: Use the subtraction method, find the area of the whole rectangle, then subtract the cut-out rectangle.

1. Area of the whole rectangle:\ 10 × 8 = 80 cm² 2. Area of the cut-out rectangle:\ 4 × 3 = 12 cm² 3. Subtract to find the composite area:\ 80 - 12 = 68 cm²

Answer: The area of the composite shape is 68 cm².

Question 7

Key idea: 1 km = 1000 m, 1 m = 100 cm and 1 m = 1000 mm.

1. (a) 3.6 × 1000 = 3600 m 2. (b) 2450 ÷ 1000 = 2.45 m 3. (c) 78 ÷ 100 = 0.78 m

Answer: (a) 3600 m (b) 2.45 m (c) 0.78 m

Question 8

Answer: 31.4 cm (10π)

Question 9

Answer: (a) 30,000 cm² (b) 4.5 hectares (c) 25 cm²

Question 10

Answer: 55 cm² (½ × (8 + 14) × 5)