Perimeter/area of composite shapes

6 questions | 16 marks

Equivalent correct methods earn the corresponding marks.

1. A 10 cm by 6 cm rectangle has a 2 cm by 3 cm corner removed. Find the area. [2 marks]

$10(6) - 2(3) = 60 - 6 = 54$ cm².

Answer: 54 cm².

2. Two non-overlapping rectangles have dimensions 8 m by 3 m and 4 m by 5 m. Find their combined area. [2 marks]

$8(3) + 4(5) = 24 + 20 = 44$ m².

Answer: 44 m².

3. Find the area of a semicircle of radius 6 cm. [2 marks]

$A = \frac{1}{2}\pi(6)^2 = 18\pi$ cm².

Answer: 18π cm².

4. Find the full perimeter of a semicircle of radius 3 m. [3 marks]

Curved length is $\pi(3) = 3\pi$ m.

Straight diameter is 6 m.

Add to obtain $3\pi + 6$ m.

Answer: $(3\pi + 6)$ m.

5. An L shape is made by removing a 3 cm by 2 cm top-right corner from a 9 cm by 5 cm rectangle. Find its area and perimeter. [4 marks]

Area: $9(5) - 3(2) = 39$ cm².

The missing outer lengths are replaced by equal inward lengths.

Perimeter remains $2(9 + 5) = 28$ cm.

Answer: Area 39 cm²; perimeter 28 cm.

6. A 6 m by 4 m garden contains a circular bed of radius 1 m. Find the area outside the bed. [3 marks]

Rectangle area: $6(4) = 24$ m².

Circle area: $\pi(1)^2 = \pi$ m².

Subtract the bed area.

Answer: $(24 - \pi)$ m².