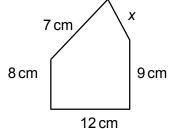
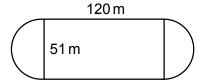
Topic Check In - 10.02 Perimeter calculations

- 1. Calculate the perimeter of a square with sides 6 cm.
- 2. Calculate the perimeter of a rectangle with sides 5 cm by 8 cm.
- 3. Calculate the circumference of a circle of diameter 4 cm.
- 4. The perimeter of this shape is 39 cm. Work out the length of x.

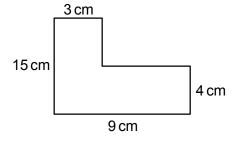


- 5. Calculate the perimeter of a semicircle of radius 12 cm.
- 6. Jim has a circle of radius 7 cm. He says the circumference is 21.99 cm. Explain why he is wrong.
- 7. Jo is training for a race. She runs around this track.

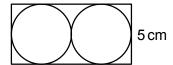


Show that she needs to complete at least 13 laps to have run 5 km.

8. Calculate the perimeter of the shape below.



- 9. A pond which is rectangular in shape has a length which is 3 times its width. The perimeter of the pond is 16 m. Work out the dimensions of the pond.
- 10. Two identical circles are drawn inside a rectangle. Which is larger, the circumference of the two circles added together, or the perimeter of the rectangle?







Extension

Darren has 36 m of fencing. He needs to make a pen in the shape of a rectangle. Investigate the different perimeters he could use. Which one would give him the largest area?

Consider different shapes for the 36 m perimeter pen. Investigate with different lengths of fencing.





Answers

- 1. 24 cm
- 2. 26 cm
- 3. 12.6 cm (1dp)
- 4. 3 cm
- 5. 61.7 cm (1dp)
- 6. He has multiplied the radius by pi not the diameter (should be 44.0 cm).
- 7. $\pi \times 51 + 240 \approx 397$ $5000 \div 397 \approx 12.6$ So 13 full laps are > 5 km
- 8. 48 cm
- $9.2m \times 6m$
- 10. For the rectangle: 5 + 10 + 10 + 5 = 30 cm For the circles: $\pi \times 5 \times 2 = 31.4$ cm So circumference of circles larger

Extension

17
$$\times$$
 1, 16 \times 2, 15 \times 3, 14 \times 4, 13 \times 5, 12 \times 6, 11 \times 7, 10 \times 8, 9 \times 9 \times 9 would give the biggest area (81 m²)

A circle pen would give the biggest area:

$$36 = \pi d$$

$$\frac{36}{\pi} = d = 11.46 \text{ (2dp)}$$

$$r = \frac{d}{2} = 5.73$$
 (2dp)

$$A = \pi r^2 = 103.1 \text{ m}^2 \text{ (1dp)}$$







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Assessment Objective	Qu.	Topic	R	Α	G
AO1	1	Perimeter of square.			
AO1	2	Perimeter of rectangle.			
AO1	3	Circumference of circle.			
AO1	4	Find missing length given perimeter.			
AO1	5	Perimeter of semicircle.			
AO2	6	Explain formula for circumference.			
AO2	7	Perimeter of composite shape.			
AO2	8	Perimeter of composite shape.			
AO3	9	Solve perimeter problem.			
AO3	10	Perimeter and circumference.			

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