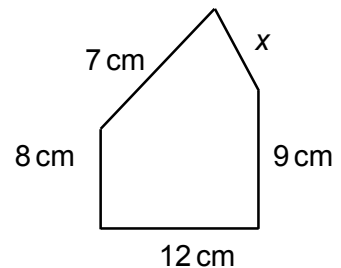
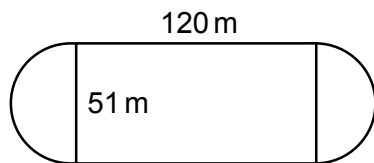


Topic Check In - 10.02 Perimeter calculations

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 .

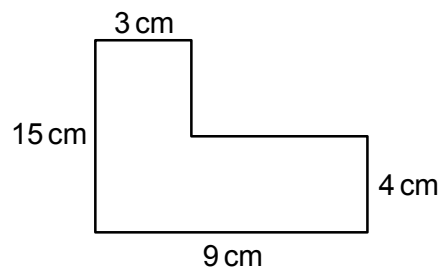


5. Calculate the perimeter of a semicircle of radius 12 cm.
6. Jim has a circle of radius 7 cm. He says the circumference is 21.99 cm. Explain why he is wrong.
7. Jo is training for a race. She runs around this track.



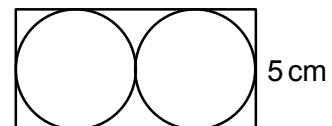
Show that she needs to complete at least 13 laps to have run 5 km.

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?



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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.



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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. $2 \text{ m} \times 6 \text{ m}$
10. For the rectangle: $5 + 10 + 10 + 5 = 30 \text{ cm}$
For the circles: $\pi \times 5 \times 2 = 31.4 \text{ cm}$
So circumference of circles larger

Extension

17×1 , 16×2 , 15×3 , 14×4 , 13×5 , 12×6 , 11×7 , 10×8 , 9×9
 9×9 would give the biggest area (81 m^2)

A circle pen would give the biggest area:

$$36 = \pi d$$

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

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

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



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Assessment Objective	Qu.	Topic	R	A	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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