

The circumference of a circle



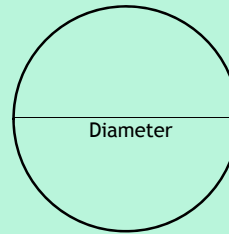
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The circumference of a circle

Approximately how many diameters fit all the way round the circumference?



Choose your answer:

- 1 1½ 2 2½
 3 3½ 4

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The circumference of a circle

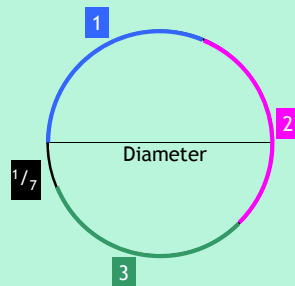
Approximately $3\frac{1}{7}$ diameters fit around the circumference.

The actual figure is:
3.14159265358...

This number is called π (pi).

Circumference = $\pi \times$ diameter
 $C = \pi d$

Or using the radius;
 $C = 2\pi r$

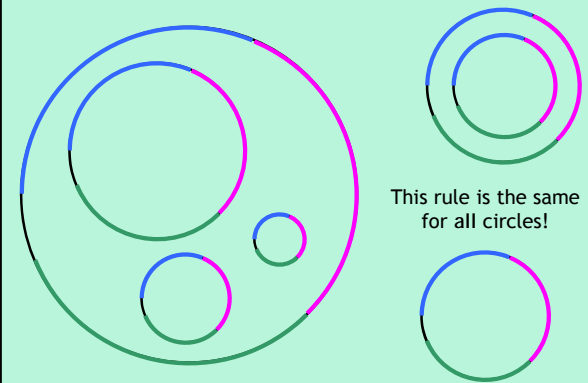


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The circumference of a circle



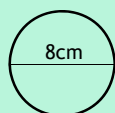
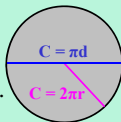
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The circumference of a circle

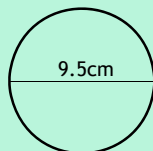
Examples: Find the circumference of these circles.



$$C = \pi d$$

$$C = \pi \times 8$$

$$C = 25.1\text{cm (1 d.p.)}$$



$$C = \pi d$$

$$C = \pi \times 9.5$$

$$C = 29.8\text{cm (1 d.p.)}$$

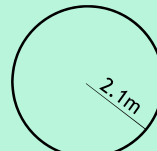
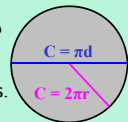
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The circumference of a circle

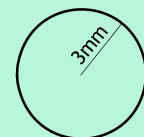
Examples: Find the circumference of these circles.



$$C = 2\pi r$$

$$C = 2 \times \pi \times 2.1$$

$$C = 13.2\text{m (1 d.p.)}$$



$$C = 2\pi r$$

$$C = 2 \times \pi \times 3$$

$$C = 18.8\text{mm (1 d.p.)}$$

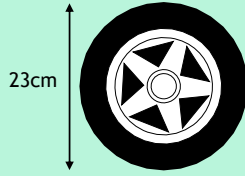
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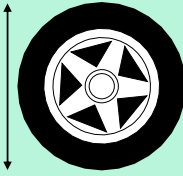
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The circumference of a circle

Examples: Find the circumference of the tyre and the steering wheel.



23cm



7.5cm

$$C = \pi d$$

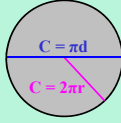
$$C = \pi \times 23$$

$$C = 72.3\text{cm (1 d.p.)}$$

$$C = 2\pi r$$

$$C = 2 \times \pi \times 7.5$$

$$C = 47.1\text{cm (1 d.p.)}$$



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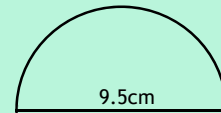
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The circumference of a circle

Examples: Find the perimeters of these shapes.



8cm



9.5cm

$$\text{Perimeter} = \frac{1}{2} \times \text{Circumference} + \text{diameter}$$

$$P = \frac{1}{2}\pi d + d$$

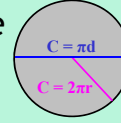
$$P = \frac{1}{2}\pi \times 8 + 8$$

$$C = 20.6\text{cm (1 d.p.)}$$

$$P = \frac{1}{2}\pi d + d$$

$$P = \frac{1}{2}\pi \times 9.5 + 9.5$$

$$C = 24.4\text{cm (1 d.p.)}$$



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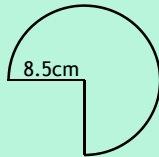
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The circumference of a circle

Examples: Find the perimeters of these shapes.



6cm



8.5cm

$$P = \frac{1}{4} \times 2\pi r + 2r$$

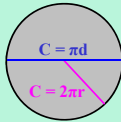
$$P = \frac{1}{4} \times 2\pi \times 6 + 2 \times 6$$

$$C = 21.4\text{cm (1 d.p.)}$$

$$P = \frac{3}{4} \times 2\pi r + 2r$$

$$P = \frac{3}{4} \times 2\pi \times 8.5 + 2 \times 8.5$$

$$C = 57.1\text{cm (1 d.p.)}$$



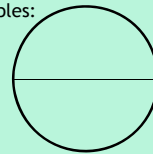
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The circumference of a circle

Examples:



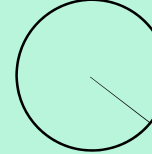
$C = 25\text{cm}$. Find the diameter.

$$C = \pi d$$

$$d = \frac{C}{\pi}$$

$$d = \frac{25}{\pi}$$

$$d = 8.0\text{cm (1 d.p.)}$$



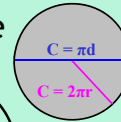
$C = 30\text{cm}$. Find the radius.

$$C = 2\pi r$$

$$r = \frac{C}{2\pi}$$

$$r = \frac{30}{2\pi}$$

$$r = 4.8\text{cm (1 d.p.)}$$



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