



**Starter: Label:**

**Top tips!**

The circumference (perimeter) of every circle is about 3.14 times bigger than the diameter..  
 This number is called pi ( $\pi$ )  
 Therefore  $\pi = 3.14159.....$

**Learn:**  
**Area of a circle =  $\pi r^2$  (pi times the radius squared)**  
**Circumference of a circle =  $\pi d$  (pi times the diameter)**

**Skills:**

- Calculate a) the circumference and b) the area of the circle below (answer to 2.d.p):

- What is the radius of a circle that has a circumference of 30cm (to 1.d.p)

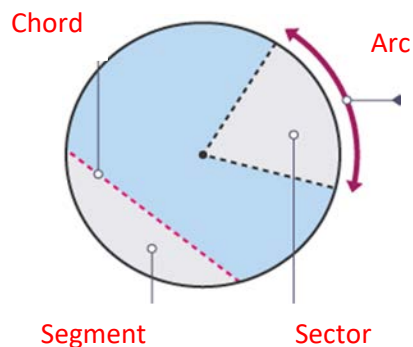
**Exam question:**

**2015 June link – Applications Unit 1C6**

*GyroVac* makes and sells industrial vacuum cleaners.

Each wheel on the vacuum cleaners has a radius of 2.8 cm.  
 In cleaning a carpet in an office, the vacuum cleaner is pushed a total distance of 30 metres.  
 Calculate how many **complete** times each wheel on the vacuum cleaner rotated during the cleaning of the office carpet. [5+2]

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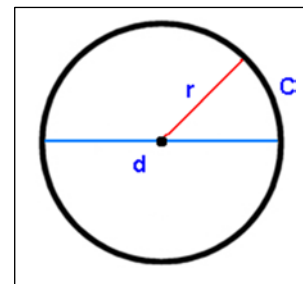


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The circumference (perimeter) of every circle is about 3.14 times bigger than the diameter.

This number is called pi ( $\pi$ )

Therefore  $\pi = 3.14159\dots\dots\dots$



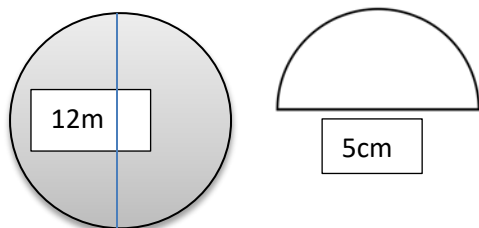
**Learn:**

**Area of a circle =  $\pi r^2$  (pi times the radius squared)**

**Circumference of a circle =  $\pi d$  (pi times the diameter)**

**Skills:**

- Calculate a) the circumference and b) the area of the circle below (answer to 2.d.p):



a)  $P = \pi \times d, P = 37.70 \text{ m}$

b)  $A = \pi r^2, A = \pi \times 6^2 = 113.10\text{m}^2$

a)  $P = \frac{\pi \times d}{2} + 5 = \frac{\pi \times 5}{2} + 5 = 12.85\text{cm}$

b)  $A = \frac{\pi r^2}{2} = \frac{\pi \times (2.5)^2}{2} = 9.82\text{cm}^2$

- What is the radius of a circle that has a circumference of 30cm (to 1.d.p)

$C = \pi \times d$

$30 = \pi \times d$

$\frac{30}{\pi} = d, d = 9.54\dots, r = 4.77\text{cm}$

**Exam question:**

2015 June link – Applications Unit 1C6

GyroVac makes and sells industrial vacuum cleaners.



Each wheel on the vacuum cleaners has a radius of 2.8 cm. In cleaning a carpet in an office, the vacuum cleaner is pushed a total distance of 30 metres.

Calculate how many **complete** times each wheel on the vacuum cleaner rotated during the cleaning of the office carpet. [5+2]

$C = \pi \times d = \pi \times 5.6 = 17.59\text{cm} \text{ (2. d. p)}$

$30 \text{ metre} = 3000 \text{ cm}$

$3000 \div 17.59 = 170.55\dots = 170 \text{ full turns.}$

