

1 In each part, circle the odd one out.
Give a reason for your answer.

- (a) $x + 4 = 12$ $x - 5 = 13$ $4x = 32$
- (b) Circumference Perimeter Volume Height
- (c) Sector Arc Chord Diameter

2.

The values of some expressions for $x = 4$ and $x = 7$ are shown.

Expression	Value when $x = 4$	Value when $x = 7$
$3x^2$	48	
$6 - \frac{3x}{2}$		$-4\frac{1}{2}$
	9	12
$\frac{1}{3-x}$		$-\frac{1}{4}$

Complete the four missing entries in the table.

3.

Here is a formula for working out the total petrol costs, T (£), for one year.

$$T = \frac{dA}{p}$$

The table shows information for Marcus.

Distance travelled in one year (d)	30 000 kilometres
Average cost of petrol (A)	£1.10 per litre
Petrol consumption (p)	15 kilometres per litre

- (i) Work out his total petrol costs for one year.
- (ii) In the following year Marcus travels fewer kilometres but his total petrol costs stay the same.

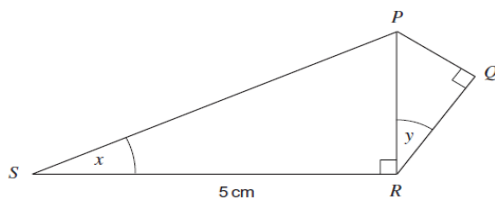
Give a possible reason for this.

4.

The diagram is made up of two right-angled triangles, PQR and PRS .
The length of SR is 5 cm.

$$\tan x = 0.8 \text{ and } \cos y = 0.9$$

Not drawn accurately



Work out the length of QR .

5.

(a) Solve $\frac{3}{4}x = 6$

(b) Solve $4(y - 5) = 28$

(c) w is an integer such that $4 \leq 2w < 11$

Work out **all** the possible values of w .

6.

The n th term of a sequence is $14 - 8n$ Write down the first **three** terms of the sequence.

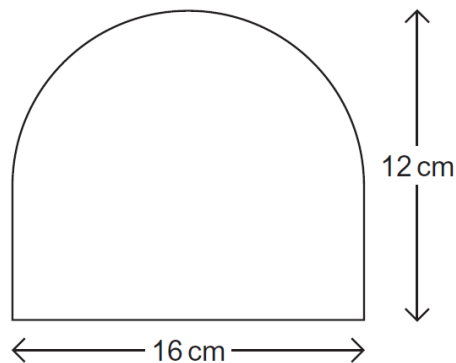
7.

(a) Factorise fully $12x^2 - 3x$

(b) Factorise $x^2 + 7x - 30$

This shape is made from a rectangle and a semicircle.

8.



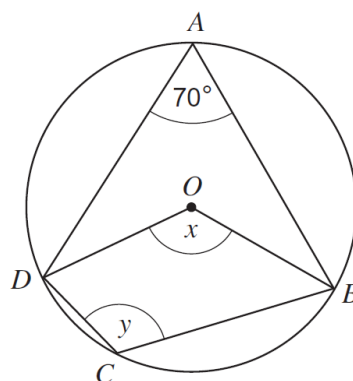
Not drawn accurately

Calculate the area of the shape.

Give your answer to an appropriate degree of accuracy.

(a) A, B, C and D are four points on the circumference of a circle, centre O .

9.



Not drawn accurately

(a) (i) Give a reason why angle x is 140° .(a) (ii) Give a reason why angle y is 110° .

10. Mymaths (Geometric Theorems)