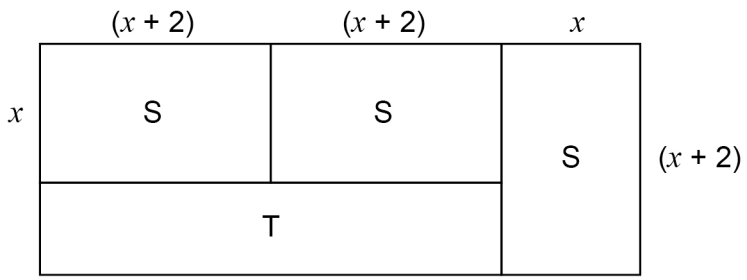
1 S and T are rectangles.

S has dimensions $(x + 2)$ and x.

Some of these rectangles make the larger rectangle shown.



Not drawn accurately

Work out an expression for the perimeter of T.

Give your answer in its simplest form.

[3 marks]

Perimeter of T = $2(x+2+x+2) + 2(x+2-x)$

$= 2(2x+4) + 2(2)$

$= 4x + 8 + 4$

$= 4x + 12$

$= 4(x+3)$ (3)

Answer $4(x+3)$

2 y is 3 more than x.

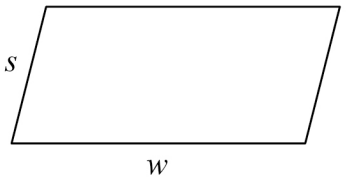
Circle the correct equation.

[1 mark]

$y = 3x$ $y = x + 3$ $y = x - 3$ $y = \frac{x}{3}$

1

3 Here is a parallelogram.



Circle the expression for the **perimeter**.

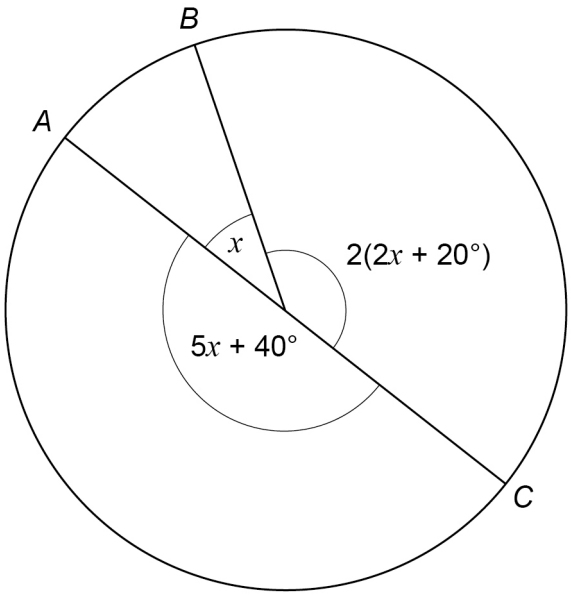
[1 mark]

$2s + 2w$ $s + w$ sw $2sw$

4 *A*, *B* and *C* are three points on a circle.

The radii from *A*, *B* and *C* are shown.

Not drawn accurately



Is *AC* a diameter of the circle?

You **must** show your working.

[3 marks]

(1)

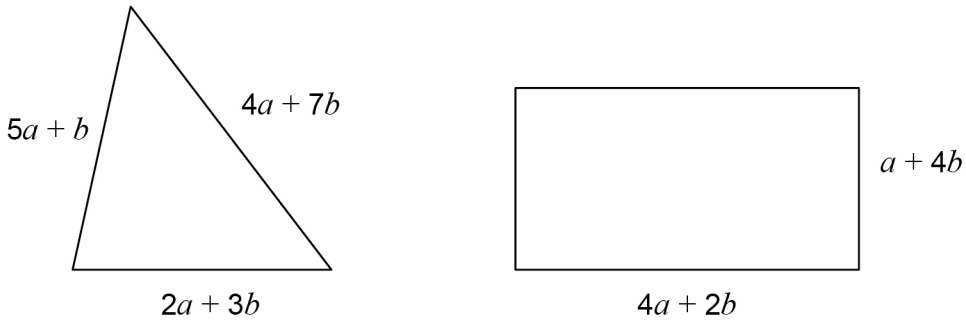
$x + 2(2x + 20^\circ)$

$= x + 4x + 40^\circ$ (1)

$= 5x + 40^\circ$ (1)

Yes.

5 Here are a triangle and a rectangle.



Not drawn accurately

a and b are positive numbers.

Which shape has the **larger** perimeter?

You **must** work out expressions for both perimeters.

[3 marks]

Triangle : $5a + b + 4a + 7b + 2a + 3b$ (1)

$= 11a + 11b$

Rectangle : $2(a + 4b) + 2(4a + 2b)$

$= 2a + 8b + 8a + 4b$

$= 10a + 12b$ (1)

Tick a box.

☐ triangle ☐ rectangle ☑ cannot tell (1)

6 P is double r.

Circle the correct formula.

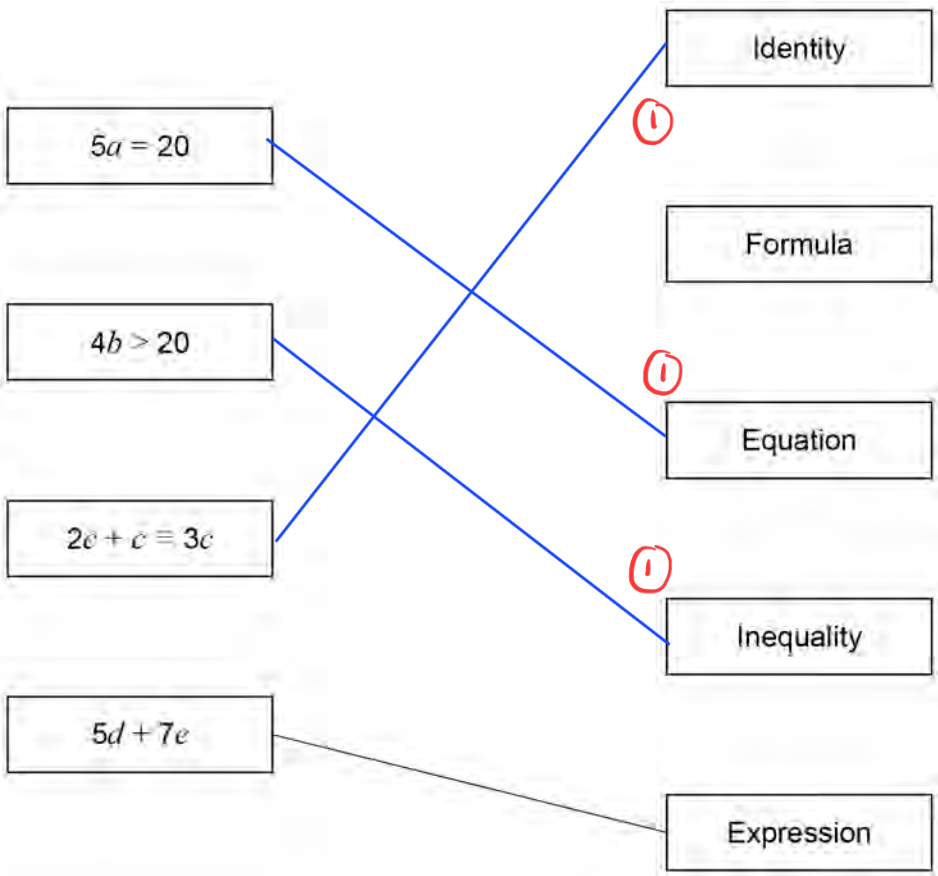
[1 mark]

$P = \frac{r}{2}$ $P = r + 2$ $P = r - 2$ $P = 2r$

7 Match the algebra to the correct description.

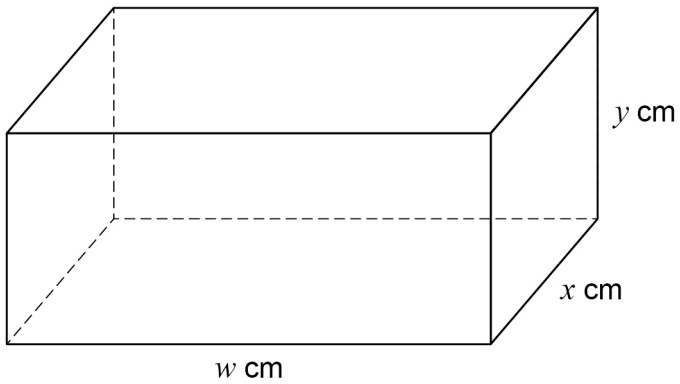
One has been done for you.

[3 marks]



8 (a) Here is a cuboid.

w, x and y are **different** whole numbers.



The total length of **all** the edges of the cuboid is 80 cm

The volume is **greater** than 200 cm^3

Work out one possible set of values for w, x and y.

[2 marks]

$4w + 4y + 4x = 80$

$4(w + x + y) = 80$

$w + x + y = 20$

$w \times x \times y > 200$

let $w = 8$, $x = 7$, $y = 5$

$8 + 7 + 5 = 20$, $8 \times 7 \times 5 = 280$

(2)

$w =$ 8 $x =$ 7 $y =$ 5

9 d is 6 more than c. d = c + 6

Circle the correct equation.

[1 mark]

$d = 6c$ $c = 6d$ $d = c + 6$ $c = d + 6$

1

10 A chef has a tub of blueberries.

She wants to

use all the blueberries

put the same number of blueberries on each dessert.

$$D = \frac{k}{b}$$

D is the number of desserts.

b is the number of blueberries on each dessert.

10 (a) What does the constant k represent?

Tick the correct box.

[1 mark]

- [✓] The number of blueberries in the tub
- [ ] The number of desserts
- [ ] The number of blueberries on each dessert
- [ ] None of the above