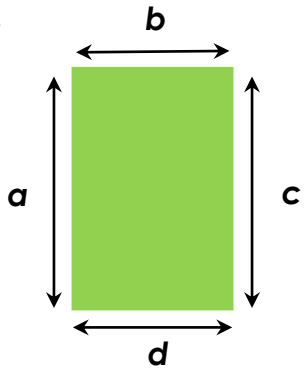
Week 16

Wednesday 8th July 2020

Year 6 Using Formulae - Reasoning and Problem Solving

Formulae

1a. Write a formula for the perimeter of the shape.



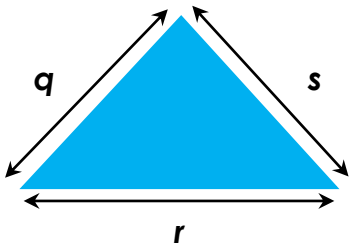
Use your formula to work out the perimeter if a = 9cm, c = 9cm, b = 2cm and d = 2cm.

Not to scale

6 PS

Formulae

1b. Write a formula for the perimeter of the shape.



Use your formula to work out the perimeter if q = 3cm, s = 3cm and r = 4cm.

Not to scale

6 PS

2a. Here is a formula for the amount of wood to buy when building a shed (S).

$$S = 2 \times w$$

Hamish needs a shed 6m wide (w). He has 20m of wood.

Does Hamish have enough wood? Convince me!

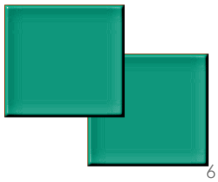
6 R

2b. Here is a formula for the amount of tiles needed to cover a wall (T).

$$T = w \times 2$$

A wall is 14m wide (w). Lucie has 24 tiles to cover the wall.

Does Lucie have enough tiles? Convince me!



6 R

3a. Cleaning fluid (c) is made up of 5 cups of water (w) and 2 cups of bleach (b).

Which formula represents this?

A. $c = 5w + 2b$

B. $c = 5 + w + 2 + b$

Explain how you know.

6 R

3b. Tomato feed (f) is made up of 6 cups of water (w) and 1 cup of plant food (p).

Which formula represents this?

A. $f = 1w + 6p$

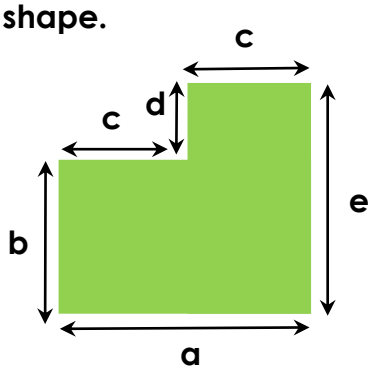
B. $f = 6w + 1p$

Explain how you know.

6 R

Formulae

4a. Write a formula for the perimeter of the shape.



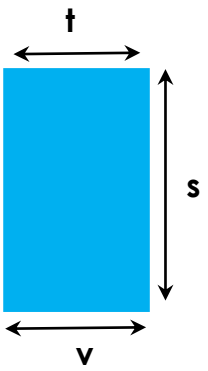
Use your formula to work out the perimeter if a = 10cm, b = 6cm, c = 4cm, d = 3cm and e = 8cm.

Not to scale

6 PS

Formulae

4b. Write a formula for the area of the shape.



Use your formula to work out the area if s = 9m, t = 6m and v = t.

Not to scale

6 PS

5a. Here is a formula for the amount of paint needed (P) to paint a wall.

$$P = w \times 50ml$$

A wall is 13m wide (*w*). Deni has 650ml of paint.

Does Deni have enough paint? Convince me!

6 R

5b. Here is a formula for the amount of pet food (F) needed over 2 months.

$$F = w \times m$$

A puppy weighs 6kg (w) and is 8 months old (m). His owner plans to feed him 40kg of food over the next 2 months.

Does his own have enough pet food? Convince me!

6 R

6a. The formula for calculating speed (s) is distance (d) divided by time (t).

Which two formulae represent this?

A. $s = d \div t$

B. $s = t \div d$

C. $s = \frac{d}{t}$

Explain how you know.

6 R

6b. The formula for calculating the area of a triangle (a) is base (b) multiplied by height (h), divided by 2.

Which two formulae represent this?

A. $a = 2 \div b \times h$

B. $a = (b \times h) \div 2$

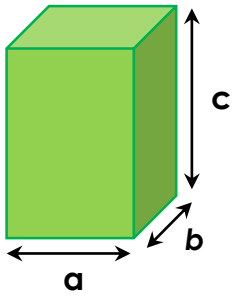
C. $a = \frac{(b \times h)}{2}$

Explain how you know.

6 R

Formulae

7a. Write a formula for the volume of the shape.



Use your formula to work out the area if $a = 6cm$, $b = \frac{a}{2}$, $c = 2a$.

GD

Not to scale

6 PS

8a. Here is a formula for the minimum amount of exercise in minutes (e) that a puppy needs each day.

$$e = \frac{(w + a)}{2}$$

A puppy weighs 8kg (w) and is 10 months old (a). Her owner plans to walk her for 10 minutes each day.

Is this enough? Convince me!

GD

6 R

9a. The height to set a desk (*D*) for optimum working conditions is half a person's height (*h*) then subtract 30.5cm.

Which two formulae represents this?

A. $D = (h \div 2) - 30.5$

B. $D = \frac{h - 30.5}{2}$

c. $D = \frac{h}{2} - 30.5$

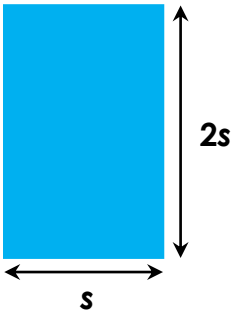
Explain how you know.

GD

6 R

Formulae

7b. Write a formula for the area of the shape.



Use your formula to work out the area if $s = 8cm$.

GD

Not to scale

6 PS

8b. Here is a formula for the amount of paving slabs needed to create a patio (p).

$$p = (l \times w) \times 5$$

The area is 2.5m in length (l) and 4m in width (w). Katie buys 58 paving slabs.

Does she have enough? Convince me!

GD

6 R

9b. To make chocolate milk (c), you need 5 cups of milk (m) and a bar of chocolate (n) halved.

Which two formulae represent this?

A. $c = 5m + n \div 2$

B. $c = 5m + (n \div 2)$

C. $c = \frac{n + 5m}{2}$

Explain how you know.

GD

6 R