

Using Formulas – Spicy Activity

4a. The number of adults (a) needed to oversee an Early Years trip is calculated as six children (c) to each adult.

Expressed as the formula:

$$a = 6c$$

If there are 5 adults, how many children can go on the trip?



VF

4b. The number of clean towels (t) needed by a hotel is calculated as 3 per guest (g).

Expressed as the formula:

$$g = 3t$$

If there are 20 guests, how many clean towels will be needed?



VF

2a. Here is a formula for the amount of flour (f) needed to bake brownies.

$$f = c \times 2$$

Hamish has 2 bars of chocolate (c) and 3 bags of flour.

Does Hamish have enough flour?
Convince me.



R

2b. Here is a formula for the number of tulips (t) planted for every rose (r).

$$r = 3t$$

Maud plants 2 roses; she has planted 5 tulips.

Has she planted enough tulips?
Convince me.



R

8a. To calculate the price of a taxi (p), the firm decide to charge £0.75 per mile (m).

Expressed as the formula:

$$0.75m = p$$

If a journey is 8 miles, how much will a taxi cost?



VF

8b. When baking cupcakes, Sara needs half the amount of sugar (s) as flour (f).

Expressed as the formula:

$$s = \frac{f}{2}$$

How much sugar will she need if she uses 250g of flour?



VF

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

$$p = w \times 50\text{ml}$$

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

Does Deni have enough paint?
Convince me.



R

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

$$f = w \times m$$

A puppy weighs 6kg (w) and is 8 months old (m). His owner has bought 40kg of food to use for the next 2 weeks.

Does his owner have enough pet food?
Convince me.



R

12a. To calculate the BMI of a person, you can use their weight in kilograms and height in metres.

Expressed as the formula:

$$b = \frac{w}{h^2}$$

If someone is 2m tall (h) and weighs 92 kg (w), what is their BMI?



VF

12b. To work out the speed of a travelling car, you can use the distance in miles and the time in hours.

Expressed as the formula:

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

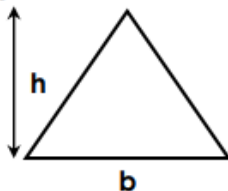
If a car travels 12 miles (d) in 30 minutes (t), what speed was it travelling at?



VF

7a. Yusuf is calculating the area of a triangle.

He is using the formula $a = \frac{1}{2} b \times h$.



When $b = 12\text{cm}$, he calculates that $a = 66\text{cm}^2$.

What is the value of h ?

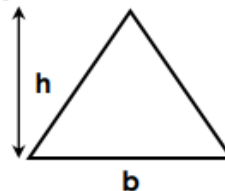


Not to scale

PS

7b. Jade is calculating the area of a triangle.

She is using the formula $a = \frac{1}{2} b \times h$.



When $h = 12\text{cm}$, she calculates that $a = 132\text{cm}^2$.

What is the value of b ?



Not to scale

PS

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

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

A puppy weighs 8kg (w) and is 16 months old (a). Her owner plans to walk her for half an hour each day.

Is this enough? Convince me.



R

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

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

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

Does she have enough? Convince me.



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 represent 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.



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.



R

Here are some rules for working out what you need on a picnic for p people.



cups (c)
 $c = p + 5$

sandwiches (s)
 $s = 3p + 1$

rugs (r)
 $r = p \div 2$

bananas (b)
 $b = p - 2$

How many cups, sandwiches, rugs and bananas are needed for:

- (a) 12 people
- (b) 22 people