

GCSE AQA Maths 8300

Ratios, Proportion & Rate of Change

Answers

"We will help you to achieve A Star"



B: G: TOTAL $4:5:9 \\ \times \frac{95}{5} \times 95:? \times 19$ (=19)

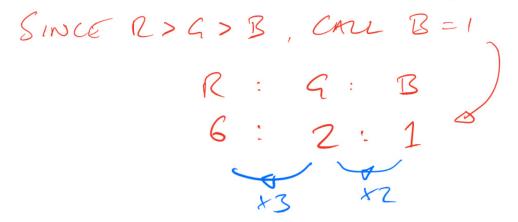
TOTAL IN SCHOOL = 9×19



In a box of pens, there are

three times as many red pens as green pens
$$\nearrow$$
 \nearrow \nearrow \checkmark and two times as many green pens as blue pens. \nearrow \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark

For the pens in the box, write down the ratio of the number of red pens to the number of green pens to the number of blue pens.





Sandra has a piece of string 153 cm long.

She cuts the string into three lengths in the ratio 4:2:3

Work out the length, in centimetres, of each piece of string.



Tara makes some pancakes. She uses 750 ml of milk.

(b) Work out how many pancakes she makes.

$$P: M$$

$$\times \frac{750}{300} = 10 : 300 \text{ mL} \\ ? : 750 \text{ mL} \\ ? : 750 \text{ mL} \\ ? : 750 \text{ mL}$$

$$7 = 10 \times 750 = 25 \text{ PANCATES}$$



Katie also has a tin of chocolates.

There are 80 chocolates in the tin.

45% of the chocolates have toffee in the middle.

(b) Work out the number of chocolates that have toffee in the middle.

TOFFEES =
$$45\%$$
 of 80
= $\frac{45}{100}$ x 80
= 36



Pavel and Katie share some sweets in the ratio 3:8 Katie gets 32 sweets.

(a) How many sweets does Pavel get?

Answer 7

$$MILK : \frac{500}{10} = 50$$

BUTTEM:
$$\frac{1000}{200} = 5$$

FLOUR: $\frac{1000}{200} = 5$
 $5 \times THE REZIPE$
 $5 \times 12 = 60$



Jack is building a wall.

He uses 300 bricks to build part of the wall.

This part of the wall is 5 metres long and 1.5 metres high.

RATIOS

The complete wall will be 8 metres long and 1.5 metres high.

How many more bricks does Jack need to complete the wall?

HE NEEDS TO BUILD 8-5 = 3m MORE

LENGTH: BRICKS

 $\times \frac{3}{5} \left(\frac{5}{3} : \frac{300}{5} \right) \times \frac{3}{5}$

EXTRA BRICKS = 300 x 3

= 180 BRICKS



Here are the ingredients needed to make 12 shortcakes.

Shortcakes

Makes 12 shortcakes

50 g of sugar 200 g of butter 200 g of flour 10 ml of milk

Liz makes some shortcakes. She uses 25 m*l* of milk.

(a) How many shortcakes does Liz make?

$$\frac{25}{10} = 2.5$$



Robert has 500 g of sugar

1000 g of butter 1000 g of flour 500 ml of milk

(b) Work out the greatest number of shortcakes Robert can make.

SUGAR: 500 = 10

Butten: $\frac{1000}{200} = 5$

FLOUR: 1000 = 5

 $MILK : \frac{500}{10} = 50$



Here are the ingredients needed to make 10 pancakes.

Pancakes

Ingredients to make 10 pancakes

300 ml of milk 120 g of flour eggs

Matthew makes 30 pancakes.

(a) Work out how much flour he uses.



y is directly proportional to the square of x.

When x = 3, y = 36

Find the value of y when x = 5

FIND k:



R = 4

FORMULA



 $y = 4x^{2}$ $x = 5: \quad y = 4x5^{2}$ y = 4x25 y = 100

PROPORTIONALITY

FIND FORMULA FOR A IN TERMS OF B

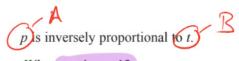
FIRST:

DIRECT: A= kB

INVERSE: A = R

(FIND R!)





When
$$t = 4$$
, $p = 12$

Find the value of p when t = 6



$$P = \frac{48}{t}$$



d is inversely proportional to c

When c = 280, d = 25

Find the value of d when c = 350

FIND k.

R = dxc

c=280,} k=25x280

= 7000

So formula 15

d = 7000

C=350: d= 7000

d = 20

PROPORTIONALITY

FIND FORMULA FOR

A IN TERMS OF B

FIRST:

DIRECT: A= kB

NVERSE: A = k

(FIND k!)



The graphs of y against x represent four different types of proportionality. Match each type of proportionality in the table to the correct graph.

PROPORTIONALITY
FIND FORMULA FOR
A IN TERMS OF B
FIRST:
DIRECT: A= kB
INVERSE: A= k
(FIND R!)

B
D
A
<u>C</u>

y=kx y=kx² y=kxx y=kx

PROCESS OF ELIMINATION!