

Simplifying ratio

Write in simplest terms using integers:

a) $6 : 15 : 12$

b) $\frac{2}{3} : \frac{3}{4}$

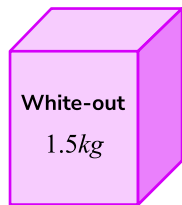
c) $0.6 : 0.15$

Direct proportion

The variables g and h are related such that h is proportional to the square of g . Complete the table of values.

g	2	4	
h		12	18.75

Best buys



£4.80



£2.50

Which box of laundry detergent is the best value for money? Show your reasoning clearly.

Multiplicative reasoning

Jani is making cupcakes with the following recipe:

How much of each ingredient would Jani need to make 30 cupcakes?

24 cupcakes

- 300g butter
- 280g sugar
- 220g flour
- 4 eggs

Inverse proportion

You are told that y is inversely proportional to x . Given that $y = 12$ when $x = 8$ calculate the value of

a) y when $x = 3$

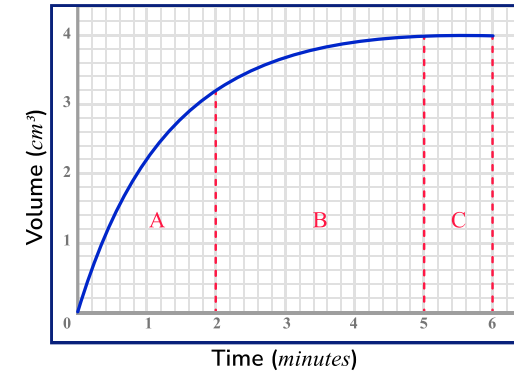
b) x when $y = 15$

Ratio problems

- 1) Addy and Jai own collections of stamps in the ratio $5 : 4$. Addy gives Jai 5 stamps and now the ratio is $5 : 7$. How many stamps did Addy and Jai each have initially?
- 2) Red paint costs £3.50 per litre. Blue paint costs £2.45 per litre. Purple paint is a mixture of red and blue in the ratio $3 : 4$. Work out the cost of 12 litres of purple paint.

Describing rates of change

This graph shows the volume of gas produced in a chemical reaction.



By reference to regions A, B and C describe the rate of the reaction during the six minute period.

Velocity-time graphs

Using this velocity-time graph for a particle in motion,

- a) Work out the particle's acceleration between A and B.
- b) Calculate the distance travelled by the particle.

