

1

Saj makes Rose Pink paint and Cherry Pink paint.

He mixes red paint with white paint as shown.

Rose Pink

red : white = 1 : 2

Cherry Pink

red : white = 4 : 3

He makes 60 litres of Rose Pink paint.

To this Rose Pink paint he adds

80 litres of red paint and 28 litres of white paint.

Has he now made Cherry Pink paint?

You **must** show your working.

[4 marks]

$$60 \div 3 = 20 \text{ litres} \quad (1)$$

Initially : rose pink = 20 litre red + 40 litre white

After added : 20 + 80 red , 40 + 28 white

= 100 red , 68 white
(1) (1)

$$\text{red : white} = \frac{100}{4} : \frac{28}{4} = 25 : 7$$

No. He does not make Cherry Pink paint.

(1)

2 (a) Tom is tiling a wall.

He needs to buy at least 100 tiles.

The tiles are sold in large packs and small packs.

Large pack 40 tiles £18

Small pack 28 tiles £14

Special offer

25% reduction when you buy 3 or more **large** packs

Work out the cheapest cost for Tom to buy the packs of tiles he needs.

[3 marks]

$$\text{[option 1]} \quad 3 \text{ large pack} : 3 \times \textcircled{1} \text{ } £18 = \textcircled{1} \text{ } £54 \times 0.75 = \textcircled{1} \text{ } £40.5$$

$$\text{[option 2]} : 2 \text{ large pack, 1 small pack} : £18 + 18 + 14 = £50$$

$$\text{[option 3]} : 4 \text{ small packs} = 4 \times £14 = £56$$

Answer £ 40.50 $\textcircled{1}$

2 (b) Tom is also tiling a floor.

The floor is a rectangle with length 600 cm and width 240 cm

Each tile is a square with side 40 cm

Tom uses this method to work out the number of tiles he needs.

$$\begin{aligned}\text{Number of tiles that will fit along the length} &= 600 \div 40 \\ &= 15\end{aligned}$$

$$\begin{aligned}\text{Number of tiles that will fit along the width} &= 240 \div 40 \\ &= 6\end{aligned}$$

$$\begin{aligned}\text{Total number of tiles needed} &= 15 + 6 \\ &= 21\end{aligned}$$

Give a reason why Tom's method is wrong.

[1 mark]

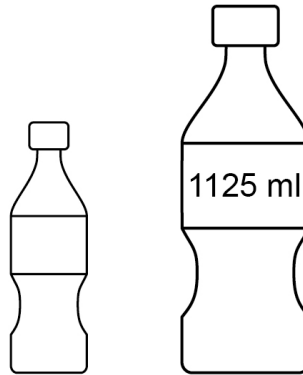
Should have multiplied 15 with 6 , not added.

①

3

Juice is sold in small bottles and large bottles.

The volume of the large bottle is 1125 ml.



$$\text{volume of small bottle} : \text{volume of large bottle} = 2 : 5$$

A café has small glasses and large glasses.

$$\text{volume of small glass} : \text{volume of large glass} = 4 : 7$$

A small bottle fills 6 small glasses with no juice left over.

How many large glasses can be filled by a large bottle?

You **must** show your working.

[4 marks]

$$\text{volume of small bottle} : \frac{2}{5} \times 1125 = 450 \quad (1)$$

$$\text{volume of 1 small glass} : 450 \div 6 = 75$$

$$75 \times \frac{7}{4} = 131.25 \quad (1)$$

$$\frac{1125}{131.25} = 8.57 \dots \quad (1)$$

$$\approx 8 \text{ glasses}$$

Answer 8 (1)

4 15 workers can complete a job in 8 days.

How many **more** workers are needed to complete the job in 6 days?

Assume that all of the workers work at the same rate.

[3 marks]

$$15 \times 8 = 120 \quad (1)$$

$$120 \div 6 = 20 \text{ workers}$$

(1)

$$20 - 15 = 5 \text{ more workers}$$

(1)

Answer 5

- 5 Sam types a constant number of words per minute.
He takes 8 minutes to type a report of 416 words.
How long does it take him to type an essay of 1534 words?
Give your answer in minutes and seconds.

[3 marks]

$$\frac{416}{8} = 52 \text{ words per minutes} \quad (1)$$

$$\frac{1534}{52} = 29.5 \text{ minutes} \quad (1)$$

$$= 29 \text{ mins } 30 \text{ seconds}$$

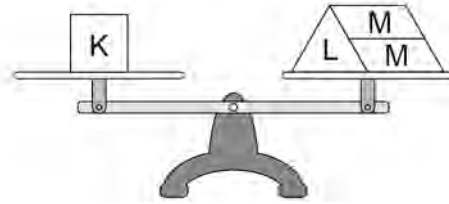
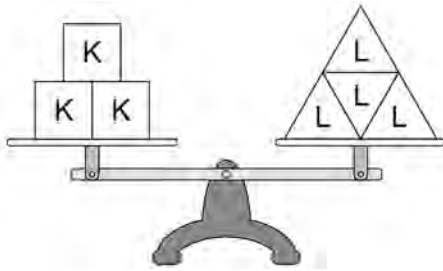
(1)

Answer 29 minutes 30 seconds

6

K, L and M are weights.

Both of the scales balance exactly.

How many M weights are needed to balance **one** L weight?**[3 marks]**

$$3K = 4L \quad (1)$$

$$K = \frac{4}{3}L$$

$$\frac{4}{3}L = L + 2M \quad (1)$$

$$\frac{1}{3}L = 2M$$

$$L = 6M \quad (1)$$

Answer 6

- 7 People in a stadium are in the North Stand, East Stand, South Stand or West Stand.
Of the people in the stadium,

$$\frac{1}{4} \text{ are in the North Stand}$$

$$\frac{3}{10} \text{ are in the East Stand}$$

$$\text{number in South Stand : number in West Stand} = 2 : 7$$

There are 4480 people in the West Stand.

How many people are in the stadium?

[4 marks]

$$\text{People in South stand : } 4480 \times \frac{2}{7} = 1280$$

$$\text{Ratio of people in (South + West Stand)} = 1 - \frac{1}{4} - \frac{3}{10} = \frac{9}{20} \quad \checkmark (1)$$

$$\text{People in (South + West Stand)} = 4480 + 1280 = 5760 \quad \checkmark (1)$$

$$\text{Number of people in the stadium} = 5760 \times \frac{20}{9} \quad \checkmark (1)$$

$$= 12800 \quad \checkmark (1)$$

Answer 12 800

8

Rick claims most of the flats in his 8-floor building are energy efficient.

He samples 45 flats from floors 1 to 5

Give a reason why this sample may **not** be useful in testing Rick's claim.

[1 mark]

The data only consists 5 out of 8 floors

/ (1)