

1 There are two drama groups in a school.

In one group there are 36 boys and 48 girls.

In the other group, $\frac{3}{7}$ of the students are boys and the rest of the students are girls.

Ann says,

“The ratio of the number of boys to the number of girls is the same for both groups.”

Is Ann correct?

You must show how you get your answer.

(Total for Question 1 is 3 marks)

2 Rosie, Matilda and Ibrahim collect stickers.

$$\begin{array}{ccccc} \text{number of stickers} & & \text{number of stickers} & & \text{number of stickers} \\ \text{Rosie has} & : & \text{Matilda has} & : & \text{Ibrahim has} \end{array} = 4:7:15$$

Ibrahim has 24 more stickers than Matilda.

Ibrahim has more stickers than Rosie.

How many more?

.....

(Total for Question 2 is 3 marks)

3 In the Northern hemisphere the ratio of the area of land to the area of water is 2:3

(a) Work out what percentage of the area of the Northern hemisphere is land.

.....%
(2)

20% of the area of the Southern hemisphere is land.

(b) Work out the ratio of the area of land to the area of water in the Southern hemisphere.

.....
(2)

(Total for Question 3 is 4 marks)

4 A delivery company has a total of 160 cars and vans.

the number of cars : the number of vans = 3 : 7

Each car and each van uses electricity or diesel or petrol.

$\frac{1}{8}$ of the cars use electricity.

25% of the cars use diesel.

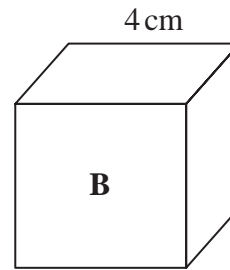
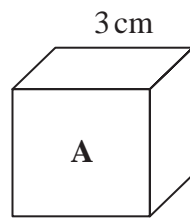
The rest of the cars use petrol.

Work out the number of cars that use petrol.

You must show all your working.

(Total for Question 4 is 5 marks)

5 Here are two cubes, **A** and **B**.



Cube **A** has a mass of 81 g.

Cube **B** has a mass of 128 g.

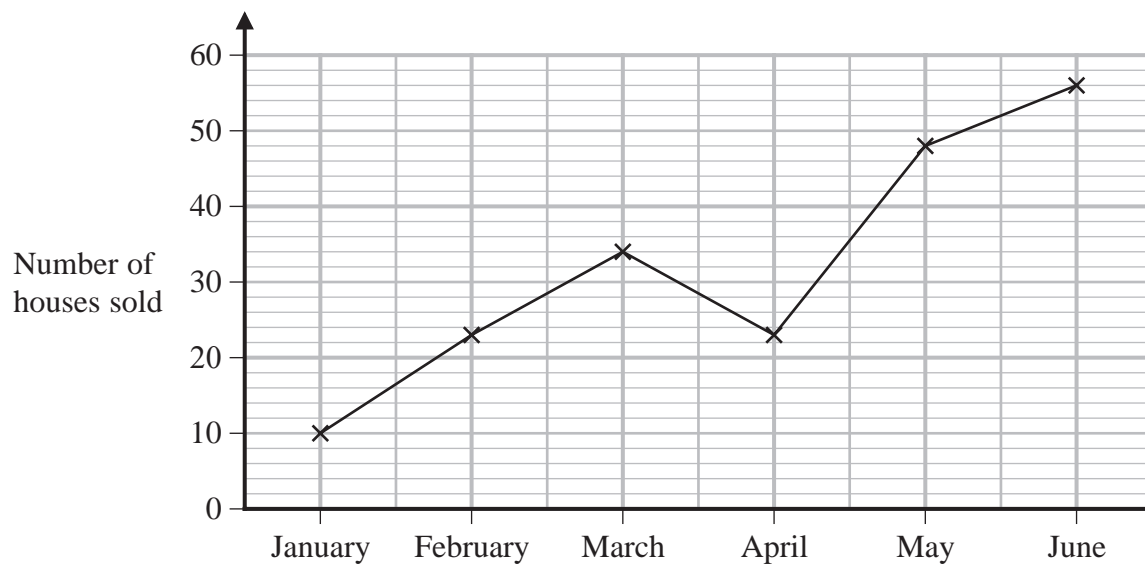
Work out

the density of cube **A** : the density of cube **B**

Give your answer in the form $a : b$, where a and b are integers.

(Total for Question 5 is 3 marks)

- 6 The graph shows information about the number of houses sold by an estate agent in each of six months last year.



- (b) For this estate agent, write down the ratio of the number of houses sold in January to the number of houses sold in June.

.....
(2)

(Total for Question 6 is 2 marks)

7 Rick, Selma and Tony are playing a game with counters.

Rick has some counters.

Selma has twice as many counters as Rick.

Tony has 6 counters less than Selma.

In total they have 54 counters.

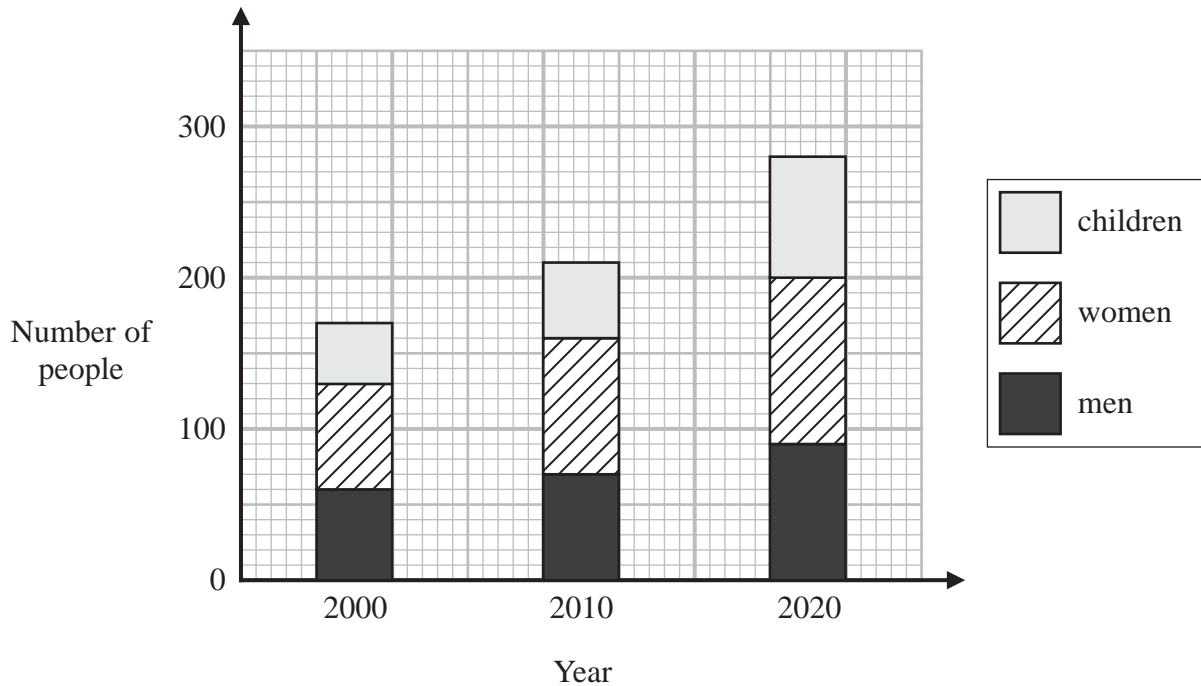
the number of counters Rick has : the number of counters Tony has = $1 : p$

Work out the value of p .

$p = \dots\dots\dots$

(Total for Question 7 is 5 marks)

8 The composite bar chart shows information about the number of people living in a village.



(a) Write down the number of men living in the village in the year 2000

.....
(1)

(b) Find the number of children living in the village in the year 2010

.....
(1)

For the people living in the village in the year 2020

(c) find the ratio of the number of children to the **total** number of men and women.

.....
(2)

(Total for Question 8 is 4 marks)

- 9 There are only blue counters, green counters, red counters and yellow counters in a bag.

The table shows the number of blue counters in the bag.

Colour	blue	green	red	yellow
Number of counters	30			

There is a total of 100 counters in the bag.

Ashin takes at random a counter from the bag.

- (a) Find the probability that the counter is **not** blue.

.....
(2)

The ratio of the number of blue counters to the number of green counters is 2:3

- (b) Work out the number of green counters in the bag.

.....
(2)

Bradley says,

“The number of red counters in the bag is the same as the number of yellow counters in the bag.”

- (c) Can Bradley be correct?
Give a reason for your answer.

.....
.....
.....
(1)

(Total for Question 9 is 5 marks)

10 Rizwan writes down three numbers a , b and c

$$a:b = 1:3$$

$$b:c = 6:5$$

(a) (i) Find $a:b:c$

.....
(2)

(ii) Express a as a fraction of the total of the three numbers a , b and c

.....
(2)

Emma writes down three numbers m , n and p

$$n = 2m$$

$$p = 5n$$

(b) Find $m:p$

.....
(2)

(Total for Question 10 is 6 marks)

11 Amol, Gemma and Harry each have a number of sweets.

The number of sweets that Gemma has is 6 times the number of sweets that Amol has.

The number of sweets that Harry has is half the number of sweets that Gemma has.

Write down the ratio

the number of sweets
that Amol has : the number of sweets
that Gemma has : the number of sweets
that Harry has

(Total for Question 11 is 2 marks)

12 Rob has been asked to divide 120 in the ratio 3:5

Here is his working.

$$120 \div 3 = 40 \qquad 120 \div 5 = 24$$

Rob's working is not correct.

Describe what Rob has done wrong.

(Total for Question 12 is 1 mark)

13 Here are the first five terms of a sequence.

3 8 13 18 23

(b) Write down the ratio of the second term to the fourth term.
Give your ratio in its simplest form.

.....
(2)

(Total for Question 13 is 2 marks)

14 There are 48 counters in a bag.
There are only red counters and blue counters in the bag.

number of red counters : number of blue counters = 1 : 2

Helen has to work out how many red counters are in the bag.

She says,

“There are 24 red counters in the bag because 1 is half of 2 and 24 is half of 48”

Is Helen correct?

You must give a reason for your answer.

.....
.....
.....
(Total for Question 14 is 1 mark)

- 15** Last year a family recycled 800 kg of household waste.
57% of this waste was paper and glass.

weight of paper recycled : weight of glass recycled = 12 : 7

Calculate the weight of glass the family recycled.

..... kg

(Total for Question 15 is 3 marks)