EXPERT TUITION

Maths Questions By Topic:

Ratio, Proportion & Rates of Change

Edexcel GCSE (Foundation)

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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,

ěThe ratio of the number of boys to the number of girls is the same for both groups.Ė

Is Ann correct?
You must show how you get your answer.

(Total for Question 1 is 3 marks)

2 3 kg of carrots cost ¢1.80
2 kg of carrots and 5 kg of potatoes cost a total of ¢3.45

Work out the total cost of 4 kg of carrots and 2 kg of potatoes.
You must show all your working.

¢.....

(Total for Question 2 is 4 marks)

3 Heidi wants to make some biscuits using this recipe.

Makes 12 biscuits
125 g butter 200 g flour 50 g sugar

Heidi thinks that she has,

500 g butter
700 g flour
250 g sugar

Assuming that these weights are correct,

(a) work out the greatest number of biscuits Heidi can make.
You must show all your working.

.....

(4)

Heidi is wrong.
She has more than 250 g of sugar.

(b) Does this affect the greatest number of biscuits Heidi can make?
Give a reason for your answer.

.....

.....

.....

(1)

(Total for Question 3 is 5 marks)

4 Robin buys a watch for ¢80
He sells the watch for ¢56

Work out his percentage loss.

.....%

(Total for Question 4 is 3 marks)

5 At the end of 2017

the value of Tamaraēs house was ¢220 000
the value of Rahimēs house was ¢160 000

At the end of 2019

the value of Tamaraēs house had decreased by 20%
the value of Rahimēs house had increased by 30%

At the end of 2019, whose house had the greater value?
You must show how you get your answer.

(Total for Question 5 is 4 marks)

6 Rosie, Matilda and Ibrahim collect stickers.

$$\text{number of stickers Rosie has} : \text{number of stickers Matilda has} : \text{number of stickers Ibrahim has} = 4:7:15$$

Ibrahim has 24 more stickers than Matilda.

Ibrahim has more stickers than Rosie.
How many more?

.....

(Total for Question 6 is 3 marks)

7 (a) A bag contains red counters and blue counters only.

number of red counters : number of blue counters = 3 : 4

Write down the fraction of the counters that are red.

.....

(1)

(b) Write the ratio 12 : 30 in the form 1 : n

.....

(2)

(Total for Question 7 is 3 marks)

8 In a shop, a TV has a normal price of ¢500
The shop has a sale.

On Monday, the normal price of the TV is reduced by $\frac{1}{10}$ to give the sale price.

On Tuesday, the sale price of the TV is reduced by 20%

Chris wants to buy the TV.
He has ¢400 to spend on the TV.

Does Chris have enough money to buy the TV on Tuesday?
You must show how you get your answer.

(Total for Question 8 is 5 marks)

9 Sean pays ¢10 for 24 chocolate bars.

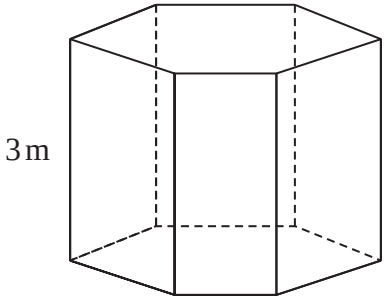
He sells all 24 chocolate bars for 50p each.

Work out Seanēs percentage profit.

..... %

(Total for Question 9 is 3 marks)

10 The diagram shows a prism placed on a horizontal floor.



pressure = $\frac{\text{force}}{\text{area}}$

The prism has height 3 m
The volume of the prism is 18 m^3

The pressure on the floor due to the prism is 75 newtons/m^2

Work out the force exerted by the prism on the floor.

..... newtons

(Total for Question 10 is 3 marks)

11 Given that $\frac{a}{b} = \frac{2}{5}$ and $\frac{b}{c} = \frac{3}{4}$

find $a : b : c$

.....

(Total for Question 11 is 3 marks)

12 Write 15% as a decimal.

.....

(Total for Question 12 is 1 mark)

13 Work out the difference, in minutes, between 1 hour 25 minutes and $1\frac{1}{4}$ hours.

..... minutes

(Total for Question 13 is 2 marks)

14 There are 60 people in a choir.
Half of the people in the choir are women.

The number of women in the choir is 3 times the number of men in the choir.
The rest of the people in the choir are children.

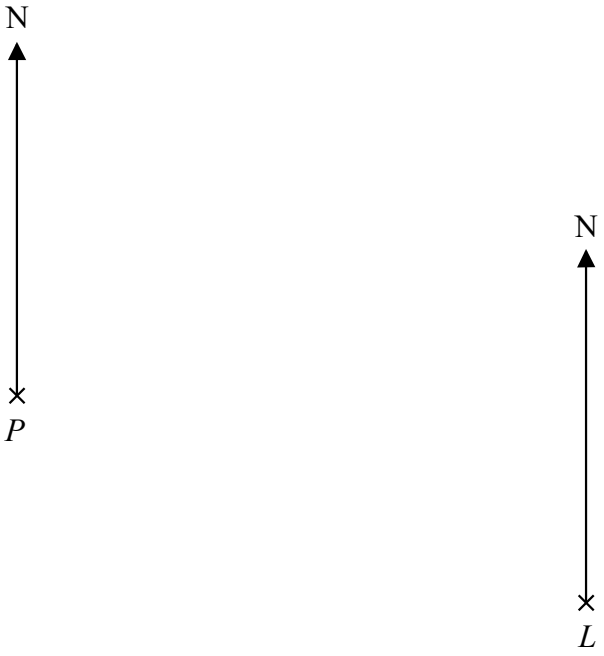
the number of children in the choir : the number of men in the choir = n : 1

Work out the value of n.
You must show how you get your answer.

n = ...

(Total for Question 14 is 4 marks)

15 The accurate scale drawing shows the positions of port P and a lighthouse L.



Scale: 1 cm represents 4 km.

Aleena sails her boat from port P on a bearing of 070°

She sails for $1\frac{1}{2}$ hours at an average speed of 12 km/h to a port Q.

Find

(i) the distance, in km, of port Q from lighthouse L,

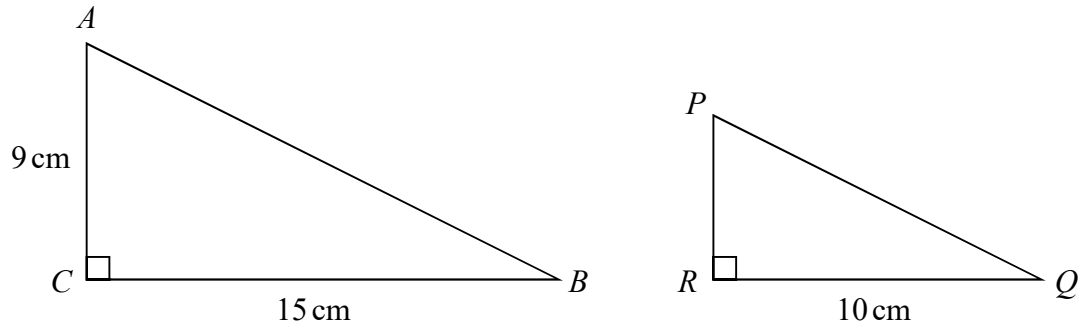
(ii) the bearing of port Q from lighthouse L.

distance QL = ... km

bearing of Q from L = ... °

(Total for Question 15 is 5 marks)

16 *ABC* and *PQR* are similar right-angled triangles.



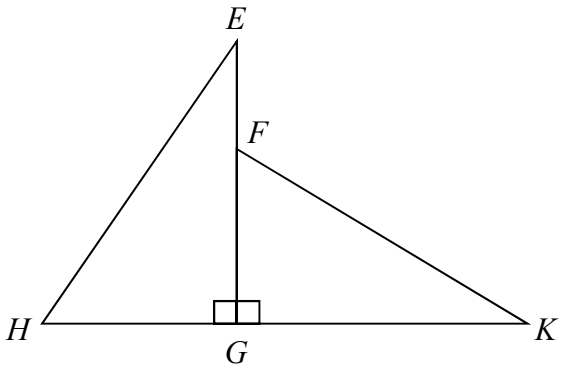
angle *ABC* = angle *PQR*

(a) Work out the length of *PR*.

..... cm

(2)

Triangle *EGH* is congruent to triangle *KGF*.



HK = 10 cm.
HG = 4 cm.

(b) Work out the length of *EF*.

..... cm

(2)

(Total for Question 16 is 4 marks)

17 Write 180 minutes in hours.

..... hours

(Total for Question 17 is 1 mark)

18 Write 0.73 as a percentage.

..... %

(Total for Question 18 is 1 mark)

19 Ruth left her home at 9 am and walked to the library.
She got to the library at 10 30 am.
Ruth walked at a speed of 4 mph.

(a) Work out the distance Ruth walked.

..... miles

(2)

Ruth got to the library at 10 30 am.
She stayed at the library for 50 minutes.
Then she walked home.
Ruth took $1\frac{1}{4}$ hours to walk home.

(b) At what time did Ruth get home?

.....

(2)

(Total for Question 19 is 4 marks)

20 The length of a line is x centimetres.

Write down an expression, in terms of x, for the length of the line in millimetres.

.....

(Total for Question 20 is 1 mark)

21 The diagram shows a rectangular garden path.

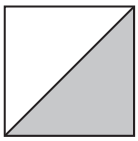
Wasim is going to cover the path with paving stones.
Each paving stone is a square of side 30 cm.
Each paving stone costs ¢2.50

Wasim has ¢220 to spend on paving stones.

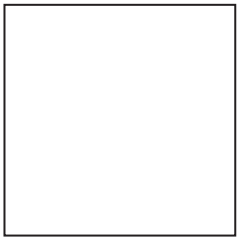
Show that he has enough money to buy all the paving stones he needs.

(Total for Question 21 is 4 marks)

22 Here are two squares, **A** and **B**.



A



B

The length of the side of square **A** is 50% of the length of the side of square **B**.

Express the area of the shaded region of square **A** as a percentage of the area of square **B**.

..... %

(Total for Question 22 is 3 marks)

23 Deon needs 50 g of sugar to make 15 biscuits.

She also needs

three times as much flour as sugar
two times as much butter as sugar

Deon is going to make 60 biscuits.

(a) Work out the amount of flour she needs.

..... g

(3)

Deon has to buy all the butter she needs to make 60 biscuits.
She buys the butter in 250 g packs.

(b) How many packs of butter does Deon need to buy?

.....

(2)

(Total for Question 23 is 5 marks)

24 A shop sells packs of black pens, packs of red pens and packs of green pens.

There are

2 pens in each pack of black pens
5 pens in each pack of red pens
6 pens in each pack of green pens

On Monday,

$$\text{number of packs of black pens sold} : \text{number of packs of red pens sold} : \text{number of packs of green pens sold} = 7:3:4$$

A total of 212 pens were sold.

Work out the number of green pens sold.

.....

(Total for Question 24 is 4 marks)

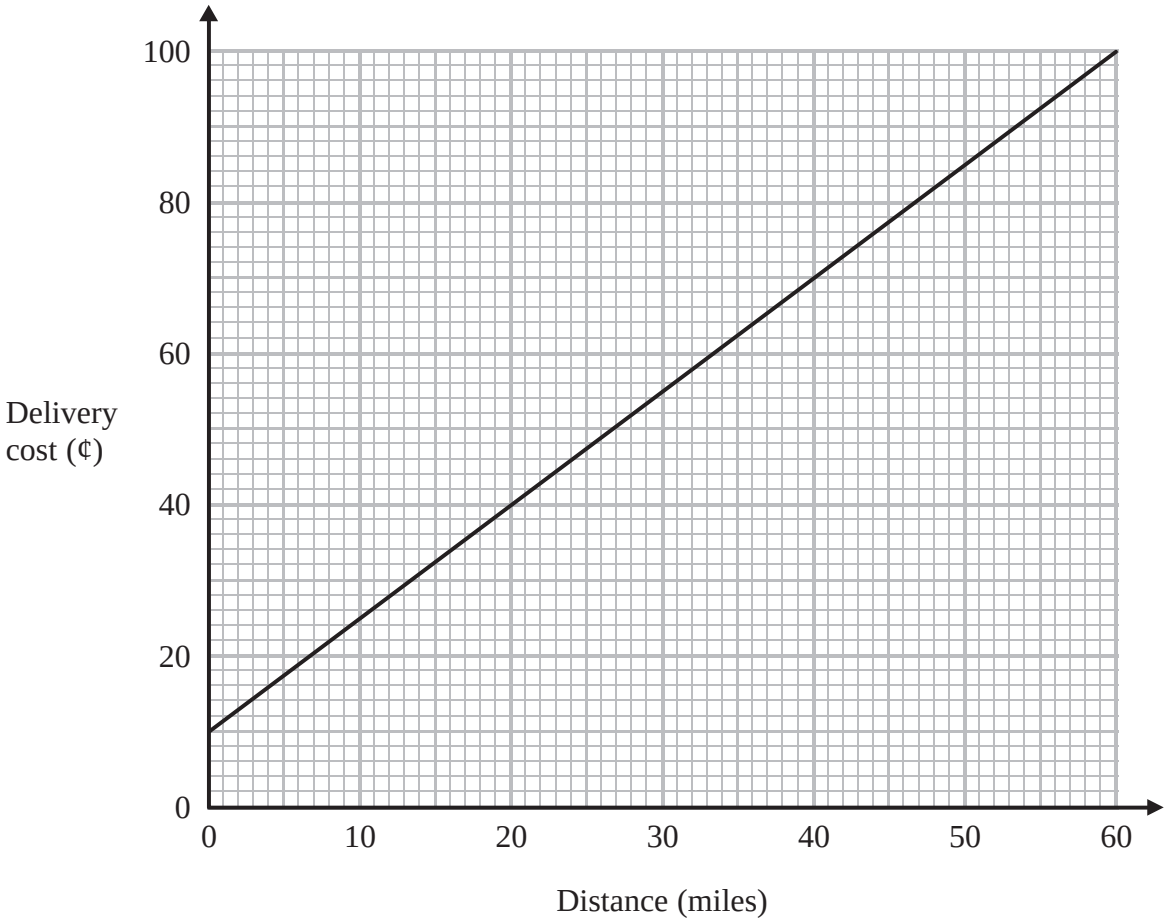
25 Write 0.6 as a percentage.

..... %

(Total for Question 25 is 1 mark)

26 Tom uses his lorry to deliver bricks.

You can use this graph to find the delivery cost for different distances.



For each delivery, there is a fixed charge plus a charge for the distance.

(a) How much is the fixed charge?

¢ .....

(1)

Tom makes two deliveries of bricks.
The distance of one delivery is 20 miles more than the distance of the other delivery.

(b) Work out the difference between the two delivery costs.

¢ .....

(2)

(Total for Question 26 is 3 marks)

27 Azmol, Ryan and Kim each played a game.

Azmol's score was four times Ryan's score.
Kim's score was half of Azmol's score.

Write down the ratio of Azmol's score to Ryan's score to Kim's score.

.....

(Total for Question 27 is 2 marks)

28 Shahid is going to use these instructions to make a fizzy drink.

Mix 5 parts of orange juice with 2 parts of lemonade

Shahid thinks that he has 300 m*l* of orange juice and 200 m*l* of lemonade.

(a) If Shahid is correct, what is the greatest amount of fizzy drink he can make?

..... m*l*

(3)

Shahid has 300 m*l* of orange juice but he only has 160 m*l* of lemonade.

(b) Does this affect the greatest amount of fizzy drink he can make?
Give a reason for your answer.

.....

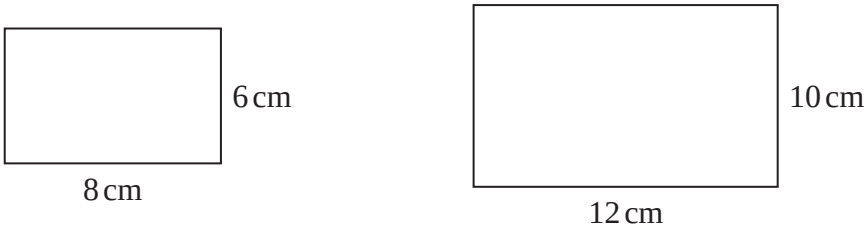
.....

.....

(1)

(Total for Question 28 is 4 marks)

29 Here are two rectangles.



Jim says,

ěThe two rectangles are similar because $8 + 4 = 12$ and $6 + 4 = 10$Ė

Is Jim correct?
Explain your answer.

.....

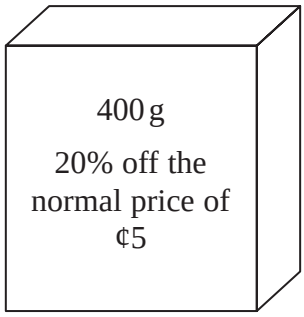
.....

(Total for Question 29 is 1 mark)

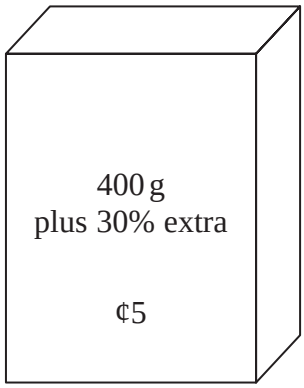
30 Food Mart and Janēs Store sell boxes of the same type of breakfast cereal.

Each shop has a special offer.

Food Mart



Jan's Store



Which box of cereal is the better value for money?
You must show your working.

(Total for Question 30 is 4 marks)

31 A bonus of ¢2100 is shared by 10 people who work for a company.
40% of the bonus is shared equally between 3 managers.
The rest of the bonus is shared equally between 7 salesmen.

One of the salesmen says,

ěIf the bonus is shared equally between all 10 people I will get 25% more money.Ė

Is the salesman correct?
You must show how you get your answer.

(Total for Question 31 is 5 marks)

32 It would take 120 minutes to fill a swimming pool using water from 5 taps.

(a) How many minutes will it take to fill the pool if only 3 of the taps are used?

..... minutes

(2)

(b) State one assumption you made in working out your answer to part (a).

.....

.....

(1)

(Total for Question 32 is 3 marks)

---

33 A plane travels at a speed of 213 miles per hour.

(a) Work out an estimate for the number of seconds the plane takes to travel 1 mile.

..... seconds

(3)

(Total for Question 33 is 3 marks)

---

34 Write 20% as a fraction.

.....

(Total for Question 34 is 1 mark)

35 3 kg of meat costs Ã54
Nina buys 2 kg of the meat.

Work out how much Nina pays.

¢ .....

(Total for Question 35 is 2 marks)

36 Gavin, Harry and Isabel each earn the same monthly salary.

Each month,

Gavin **saves** 28% of his salary and spends the rest of his salary

Harry spends $\frac{3}{4}$ of his salary and **saves** the rest of his salary

the amount of salary Isabel saves : the amount of salary she spends = 3 : 7

Work out who saves the most of their salary each month.
You must show how you get your answer.

(Total for Question 36 is 4 marks)

37 Work out 15% of 160 grams.

..... grams

(Total for Question 37 is 2 marks)

38 There are some chocolates in a box.

$\frac{1}{4}$ of the chocolates contain nuts.

The rest of the chocolates do not contain nuts.

Write down the ratio of the number of chocolates that contain nuts to the number of chocolates that do not contain nuts.
Give your answer in the form 1 : n

.....

(Total for Question 38 is 2 marks)

39 In a village

the number of houses and the number of flats are in the ratio 7 : 4
the number of flats and the number of bungalows are in the ratio 8 : 5

There are 50 bungalows in the village.

How many houses are there in the village?

.....

(Total for Question 39 is 3 marks)

40 Renee buys 5 kg of sweets to sell.
She pays Ã10 for the sweets.

Renee puts all the sweets into bags.
She puts 250 g of sweets into each bag.
She sells each bag of sweets for 65p.

Renee sells all the bags of sweets.

Work out her percentage profit.

.....%

(Total for Question 40 is 4 marks)

41 A cycle race across America is 3069.25 miles in length.

Juan knows his average speed for his previous races is 15.12 miles per hour.
For the next race across America he will cycle for 8 hours per day.

(a) Estimate how many days Juan will take to complete the race.

.....

(3)

Juan trains for the race.
The average speed he can cycle at increases.
It is now 16.27 miles per hour.

(b) How does this affect your answer to part (a)?

.....

.....

(1)

(Total for Question 41 is 4 marks)

42 (a) Change 365 cm into metres.

..... m

(1)

(b) Change 2.7 kg into grams.

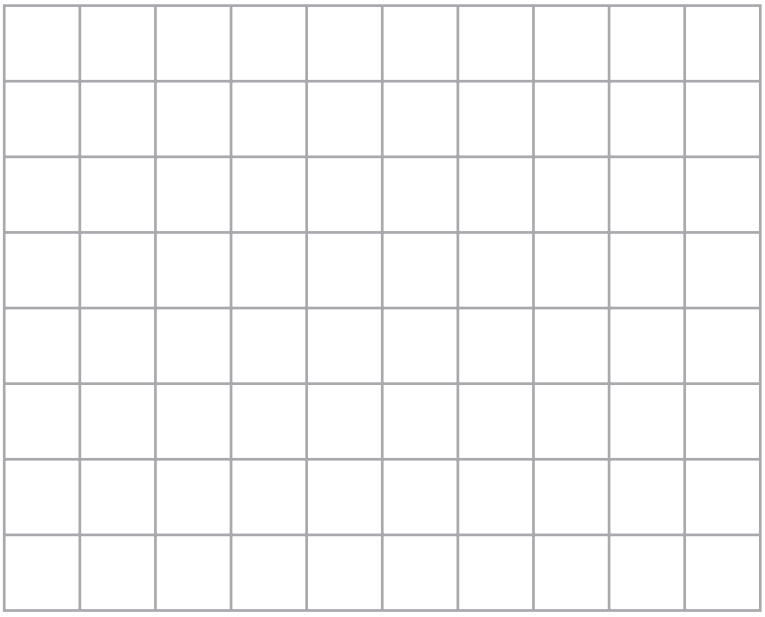
..... g

(1)

(Total for Question 42 is 2 marks)

43 The length of a rectangle is twice as long as the width of the rectangle.
The area of the rectangle is 32 cm^2.

Draw the rectangle on the centimetre grid.



(Total for Question 43 is 2 marks)

44 There are 30 children in a nursery school.
At least 1 adult is needed for every 8 children in the nursery.

(a) Work out the least number of adults needed in the nursery.

.....

(2)

2 more children join the nursery.

(b) Does this mean that more adults are needed in the nursery?
You must give a reason for your answer.

.....

(1)

(Total for Question 44 is 3 marks)

45 There are only red buttons, yellow buttons and orange buttons in a jar.
The number of red buttons, the number of yellow buttons and the number of orange buttons are in the ratio 7 : 4 : 9

Work out what percentage of the buttons in the jar are orange.

..... %

(Total for Question 45 is 2 marks)

46 Berenika wants to buy 35 T-shirts.

Each T-shirt costs ¢5.80
Berenika does the calculation $40 \times 6 = 240$ to estimate the cost of 35 T-shirts.

(a) Explain how Berenikaēs calculation shows the actual cost will be less than ¢240

.....

.....

(1)

There is a special offer.

T-shirts ¢5.80 each. Buy 30 or more T-shirts. Get 10% off the total cost.

(b) Work out the actual cost of buying 35 T-shirts using the special offer.

¢.....

(4)

(Total for Question 46 is 5 marks)

47 Harry, Regan and Kelan share ¢450 in the ratio 2 : 5 : 3

How much money does Kelan get?

¢.....

(Total for Question 47 is 2 marks)

48 Here is a list of ingredients for making 16 flapjacks.

Ingredients for 16 flap acks

120 g butter
140 g brown sugar
250 g oats
2 tablespoons syrup

Jenny wants to make 24 flapjacks.

Work out how much of each of the ingredients she needs.

butter ..... g

brown sugar ..... g

oats ..... g

syrup ..... tablespoons

(Total for Question 48 is 3 marks)

49 In a sale, the normal price of a book is reduced by 30%.
The sale price of the book is ¢2.80

Work out the normal price of the book.

¢.....

(Total for Question 49 is 2 marks)

50 Write $\frac{4}{5}$ as a percentage.

.....%

(Total for Question 50 is 1 mark)

51 Sean works for a company.
His normal rate of pay is ¢12 per hour.

When Sean works more than 8 hours a day, he is paid overtime for each hour he works more than 8 hours.

Seanēs rate of overtime pay per hour is $1\frac{1}{4}$ times his normal rate of pay per hour.

On Monday Sean worked for 10 hours.

Work out the total amount of money Sean earned on Monday.

¢.....

(Total for Question 51 is 4 marks)

52 A farmer has 20 boxes of eggs.
There are 6 eggs in each box.

Write, as a ratio, the number of eggs in two boxes to the total number of eggs.
Give your answer in its simplest form.

.....

(Total for Question 52 is 2 marks)

53 The diagram shows a tree and a man.

The man is of average height.
The tree and the man are drawn to the same scale.

(a) Write down an estimate for the real height, in metres, of the man.

..... metres
(1)

(b) Find an estimate for the real height, in metres, of the tree.

..... metres
(2)

(Total for Question 53 is 3 marks)

54 5 tins of soup have a total weight of 1750 grams.
4 tins of soup and 3 packets of soup have a total weight of 1490 grams.

Work out the total weight of 3 tins of soup and 2 packets of soup.

..... grams

(Total for Question 54 is 4 marks)

55 Azmol is paid ¢1500 per month.
He is going to get a 3% increase in the amount of money he is paid.

Work out how much money Azmol will be paid per month after the increase.

¢.....

(Total for Question 55 is 2 marks)

56 One day Sally earned ¢60
She worked for 8 hours.

Work out Sallyēs hourly rate of pay.

¢.....

(Total for Question 56 is 2 marks)

57 There are only black pens and green pens in a box.
The ratio of the number of black pens in the box to the number of green pens in the box is 2 : 5

What fraction of the pens are black?

.....

(Total for Question 57 is 1 mark)

58 Sam buys 20 boxes of oranges.
There are 25 oranges in each box.

Each boxes of oranges costs ¢7

Sam sells $\frac{2}{5}$ of the oranges he bought.

He sells each of these oranges for 40p.

He then sells each of the remaining oranges at 3 oranges for 50p.

Did Sam make a profit or did Sam make a loss?
You must show working to justify your answer.

(Total for Question 58 is 5 marks)

59 In a sale, normal prices are reduced by 20%.
The normal price of a coat is reduced by ¢15

Work out the normal price of the coat.

¢.....

(Total for Question 59 is 2 marks)

60 Gary drove from London to Sheffield.
It took him 3 hours at an average speed of 80 km/h.

Lyn drove from London to Sheffield.
She took 5 hours.

Assuming that Lyn
drove along the same roads as Gary
and did not take a break,

(a) work out Lynēs average speed from London to Sheffield.

.....km/h

(3)

(b) If Lyn did **not** drive along the same roads as Gary, explain how this could affect your answer to part (a).

.....

.....

(1)

(Total for Question 60 is 4 marks)

61 In a company, the ratio of the number of men to the number of women is 3:2

40% of the men are under the age of 25
10% of the women are under the age of 25

What percentage of all the people in the company are under the age of 25?

..... %

(Total for Question 61 is 4 marks)

62 Change 530 centimetres into metres.

..... metres

(Total for Question 62 is 1 mark)

63 How many minutes are there in $3\frac{1}{4}$ hours?

..... minutes

(Total for Question 63 is 1 mark)

64 There are 28 red pens and 84 black pens in a bag.

Write down the ratio of the number of red pens to the number of black pens.
Give your ratio in its simplest form.

.....

(Total for Question 64 is 2 marks)

65 There are 500 passengers on a train.

$\frac{7}{20}$ of the passengers are men.

40% of the passengers are women.

The rest of the passengers are children.

Work out the number of children on the train.

.....

(Total for Question 65 is 3 marks)

66 A shop sells milk in 1 pint bottles and in 2 pint bottles.

Each 1 pint bottle of milk costs 52p.
Each 2 pint bottle of milk costs 93p.

Martin has **no** milk.

He assumes that he uses, on average, $\frac{3}{4}$ of a pint of milk each day.

Martin wants to buy enough milk to last for 7 days.

(a) Work out the smallest amount of money Martin needs to spend on milk.
You must show all your working.

£.....

(3)

Martin actually uses more than $\frac{3}{4}$ of a pint of milk each day.

(b) Explain how this might affect the amount of money he needs to spend on milk.

.....

.....

.....

.....

(1)

(Total for Question 66 is 4 marks)

67 A box exerts a force of 140 newtons on a table.
The pressure on the table is 35 newtons/m^2.

Calculate the area of the box that is in contact with the table.

$$p = \frac{F}{A}$$

p = pressure
F = force
A = area

.....

(Total for Question 67 is 3 marks)

68 Write 0.8 as a percentage.

..... %

(Total for Question 68 is 1 mark)

69 Here are the instructions for making a drink.

Add 100 m*l* of juice
to 2 litres of water

Dev uses 5 litres of water to make the drink.

How much drink has he made?

.....

(Total for Question 69 is 3 marks)

70 Helen has 80 books to sell.

Each book is Fiction or Non-fiction.
The ratio of the number of Fiction books to the number of Non-fiction books is 3:1

Each book has a normal price of ¢10
Helen reduces the price of all the Non-fiction books.

Non-fiction
All books ½ price

Helen sells all 80 books.

Work out the total amount of money Helen will receive.

¢.....

(Total for Question 70 is 4 marks)

71 Ryan and Carl each get paid a basic pay of ¢60 per day.

One day, Ryan also gets a bonus of 25% of his basic pay.
Carl also gets ¢20 in tips from customers.

Work out the difference between the total amounts of money that Ryan and Carl each get.

.....

(Total for Question 71 is 3 marks)

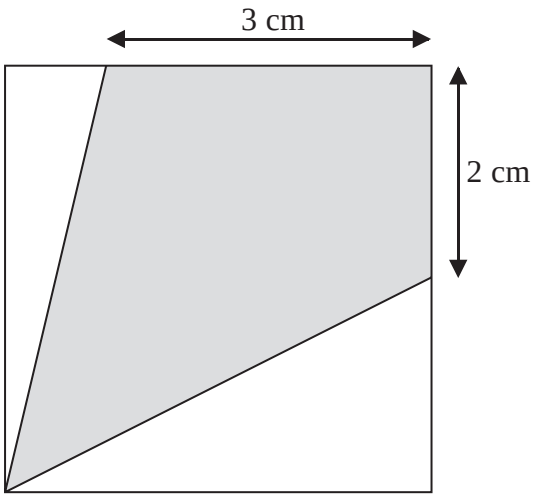
72 Irena sells ice creams.
One day she sells 80 ice creams.
The next day she sells 108 ice creams.

Work out the percentage increase in the number of ice creams she sells.

..... %

(Total for Question 72 is 3 marks)

73 The diagram shows a square with perimeter 16 cm.



Work out the proportion of the area inside the square that is shaded.

.....

(Total for Question 73 is 5 marks)

74 Write 31% as a fraction.

.....

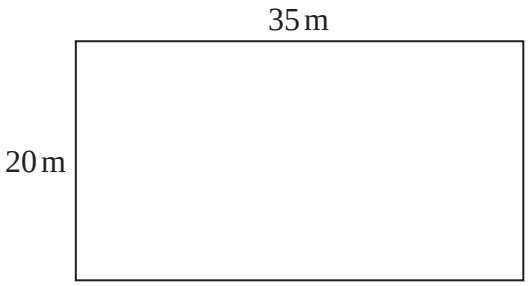
(Total for Question 74 is 1 mark)

75 Change 3 metres into centimetres.

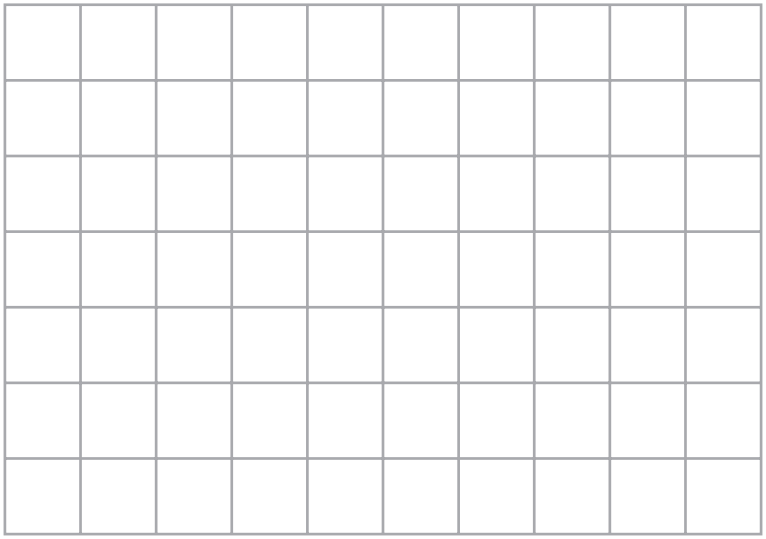
..... centimetres

(Total for Question 75 is 1 mark)

76 The diagram shows a rectangle.



On the centimetre grid below, draw an accurate scale drawing of this rectangle.
Use a scale of 1 cm to represent 5 m.



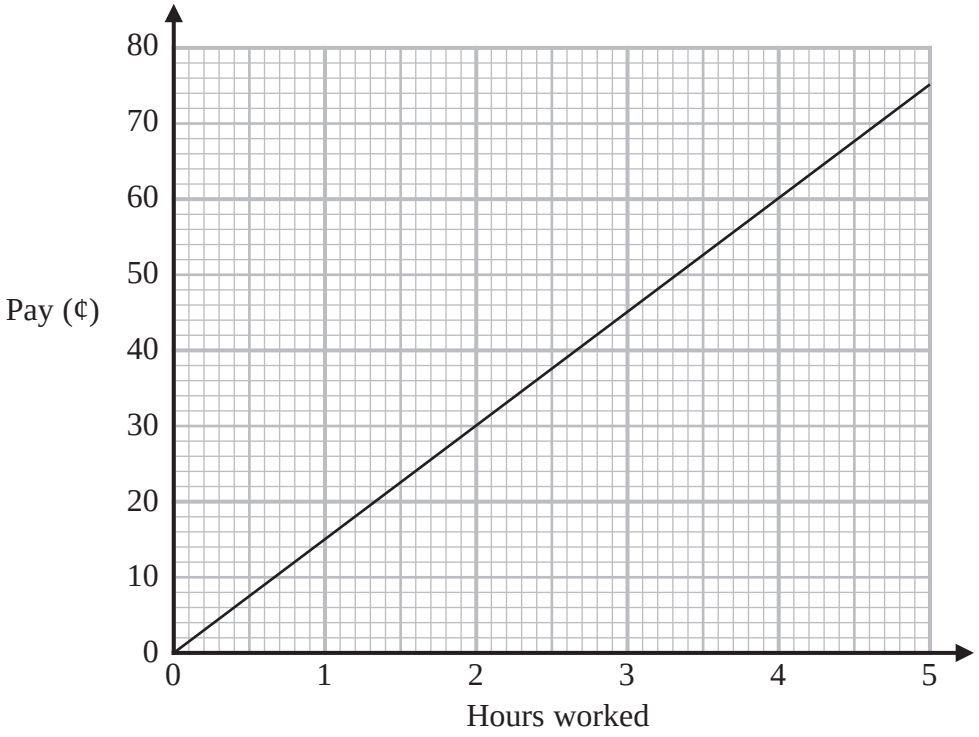
(Total for Question 76 is 2 marks)

77 Write 17 as a fraction of 30

.....

(Total for Question 77 is 1 mark)

78 Nazima uses this graph to find out how much money she is paid for the number of hours she has worked.



(a) How much money is Nazima paid for each hour she works?

¢.....

(1)

Last week Nazima worked for 36 hours.

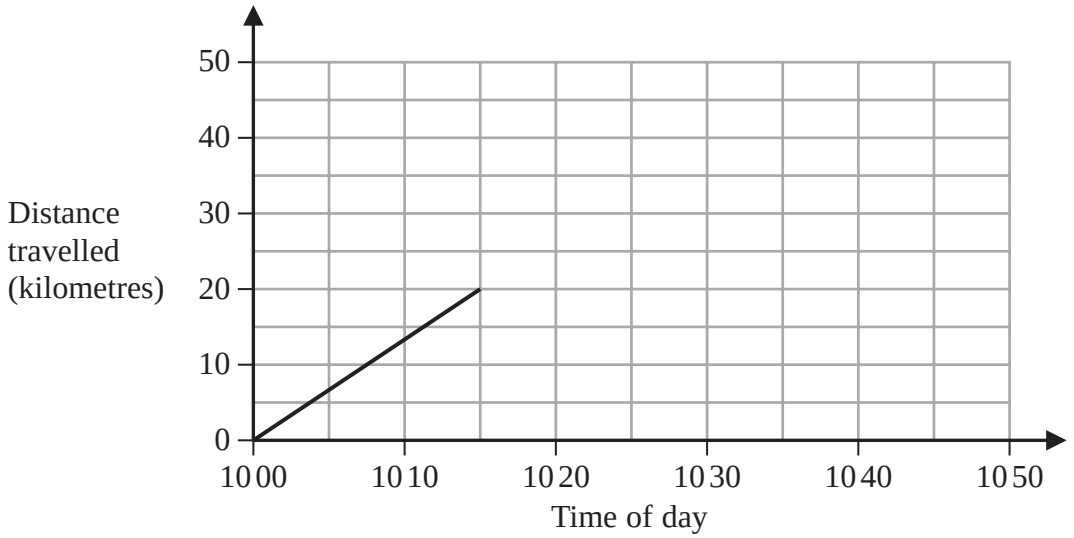
(b) How much money was Nazima paid?

¢.....

(2)

(Total for Question 78 is 3 marks)

79 Sam drives his car on a journey.
Here is the travel graph for the first 15 minutes of his journey.



(a) Work out Samēs speed, in km/h, for the first 15 minutes of his journey.

..... km/h

(2)

At 10 15 Sam stops for 10 minutes and then drives for 20 minutes at a speed of 75 km/h.

(b) On the grid, complete the travel graph for Samēs journey.

(3)

(Total for Question 79 is 5 marks)

80 In a sale, the normal price of a boat is reduced by 15%
The sale price of the boat is ¢272 000

Work out the normal price of the boat.

¢.....

(Total for Question 80 is 2 marks)

81 Write $\frac{1}{4}$ as a percentage.

.....%

(Total for Question 81 is 1 mark)

82 Liz is watching a film at the cinema.

The film started at 14 30
The film is 105 minutes long.

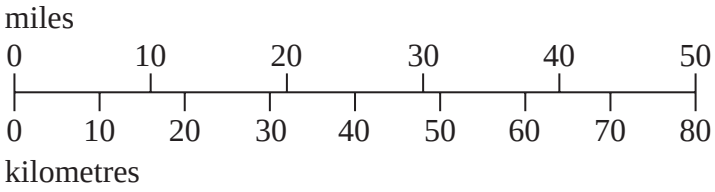
When the film ends, Liz takes 20 minutes to get to the bus stop.

A bus leaves the bus stop at 16 45

Does Liz get to the bus stop in time to get this bus?
You must show all your working.

(Total for Question 82 is 3 marks)

83 This scale can be used to change between kilometres and miles.



(a) Use the scale to change 40 kilometres to miles.

..... miles

(1)

Here is an approximate rule to change from kilometres to miles.

Divide the distance in kilometres by 10 and then multiply by 6

(b) Use this approximate rule to change 40 kilometres to miles.

..... miles

(2)

(c) Compare your answer to part (b) with your answer to part (a).

.....

.....

.....

(1)

(Total for Question 83 is 4 marks)

84 Scott wants to make orange juice.
He is going to buy boxes of oranges.

There are 24 oranges in each box of oranges.
30 oranges make 2 litres of orange juice.

Scott needs to buy enough oranges to make 8 litres of orange juice.

(a) Work out the number of boxes of oranges that Scott needs to buy.
You must show all your working.

.....

(3)

Scott also buys
1260 apples
280 bananas

(b) Write down the ratio of the number of apples that Scott buys to the number of bananas that he buys.
Give your ratio in its simplest form.

.....

(2)

(Total for Question 84 is 5 marks)

85 Adam, Linda and Rytis share an amount of money.

Linda gets three times as much money as Rytis gets.
Linda gets half as much money as Adam gets.

What fraction of the amount of money does Linda get?

.....

(Total for Question 85 is 2 marks)

86 Pens and pencils are sold in a shop.

12 pencils cost ¢1.80

The ratio of the cost of a pen to the cost of a pencil is 7 : 3

Work out the cost of 5 pens.

¢.....

(Total for Question 86 is 4 marks)

87 Carlo puts tins into small boxes and into large boxes.

He puts 6 tins into each small box.
He puts 20 tins into each large box.

Carlo puts a total of 3000 tins into the boxes so that

number of tins in small boxes : number of tins in large boxes = 2 : 3

Carlo says that less than 30% of the boxes filled with tins are large boxes.

Is Carlo correct?
You must show all your working.

(Total for Question 87 is 5 marks)

88 Write 0.23 as a percentage.

..... %

(Total for Question 88 is 1 mark)

89 Harry has 20 sweets.
He gives 7 of the sweets to Nadia.

What fraction of the 20 sweets does Harry have now?

.....

(Total for Question 89 is 2 marks)

90 The length of a plane is 19.2 metres.

Lukas buys a scale model of the plane.
The scale of the model is 1 : 24

Work out the length of the scale model of the plane.
Give your answer in centimetres.

..... centimetres

(Total for Question 90 is 3 marks)

91 Maria invests £4500 in a savings account for 3 years.
The account pays simple interest at a rate of 1.8% per year.

Work out the total amount of interest Maria gets by the end of the 3 years.

£.....

(Total for Question 91 is 2 marks)

92 Here are the ingredients needed to make 16 biscuits.

Biscuits

Ingredients to make **16** biscuits

175 g of butter
75 g of sugar
250 g of flour

Anna has

500 g of butter
300 g of sugar
625 g of flour

Work out the greatest number of biscuits Anna can make.

.....

(Total for Question 92 is 3 marks)

93 Tom and Adam have a total of 240 stamps.
The ratio of the number of Tom's stamps to the number of Adam's stamps is 3 : 7

Tom buys some stamps from Adam.
The ratio of the number of Tom's stamps to the number of Adam's stamps is now 3 : 5

How many stamps does Tom buy from Adam?
You must show all your working.

.....

(Total for Question 93 is 4 marks)

94 The number of days, d, that it will take to build a house is given by

$$d = \frac{720}{n}$$

where n is the number of workers used each day.

Ali's company will take 40 days to build the house.
Hayley's company will take 30 days to build the house.

Hayley's company will have to use more workers each day than Ali's company.

How many more?

.....

(Total for Question 94 is 3 marks)

95 Change 1756 grams to kilograms.

.....kg

(Total for Question 95 is 1 mark)

96 Write the ratio 4.5 : 2.25 in the form $n : 1$

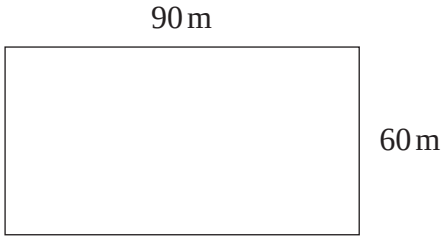
.....

(Total for Question 96 is 1 mark)

97 A garden is in the shape of a rectangle 90 m by 60 m.

Flowers are grown in 40% of the garden.
The rest of the garden is grass.

Work out the area of the garden that is grass.



..... m^2

(Total for Question 97 is 4 marks)

98 There are 84 calories in 100 g of banana.
There are 87 calories in 100 g of yogurt.

Priti has 60 g of banana and 150 g of yogurt for breakfast.

Work out the total number of calories in this breakfast.

.....

(Total for Question 98 is 4 marks)

99 Machine A and machine B both make car parts.

Machine A makes 6 parts every 10 minutes.
Machine B makes 13 parts every 15 minutes.

On Monday
machine A makes parts for 12 hours
machine B makes parts for 10 hours

Work out the total number of parts made by the two machines on Monday.

.....

(Total for Question 99 is 4 marks)

100 ¢360 is shared between Abby, Ben, Chloe and Denesh.

The ratio of the amount Abby gets to the amount Ben gets is 2 : 7

Chloe and Denesh each get 1.5 times the amount Abby gets.

Work out the amount of money that Ben gets.

¢.....

(Total for Question 100 is 4 marks)

101 (a) Change 4560 g into kg.

.....kg

(1)

(b) Change 7.3 m into mm.

.....mm

(1)

(Total for Question 101 is 2 marks)

102 A map has a scale of 1 cm to 14 km.

On the map, the distance between Manchester and London is 18.8 cm.

What is the real distance, in km, between Manchester and London?

.....km

(Total for Question 102 is 2 marks)

103 Adam gets a bonus of 30% of ¢80
Katy gets a bonus of ¢28

Work out the difference between the bonus Adam gets and the bonus Katy gets.

¢.....

(Total for Question 103 is 3 marks)

104 Remi invests ¢600 for 5 years in a savings account.
By the end of the 5 years he has received a total of ¢75 simple interest.

Work out the annual rate of simple interest.

.....%

(Total for Question 104 is 3 marks)

105 Adrian is going to make concrete.
He is going to use

180 kg of cement
375 kg of sand
1080 kg of stone

Cement, sand and stone are sold in bags.

1 bag cement	1 bag sand	1 bag stone
25 kg	22.5 kg	50 kg

Adrian already has

10 bags of cement
20 bags of sand
20 bags of stone

Work out what bags he needs to buy to make the concrete.

(Total for Question 105 is 3 marks)

106 Bill wants to increase 150 by 3%
He writes down

$$150 \times 1.3 = 195$$

Billēs method is wrong.

(a) Explain why.

.....

.....

(1)

Sally wants to decrease 150 by 3%

(b) Complete this statement to show how Sally can decrease 150 by 3%

$$150 \times \text{.....} = \text{.....}$$

(1)

(Total for Question 106 is 2 marks)

107 Northern Bank has two types of account.
Both accounts pay compound interest.

Cash savings account
Interest
2.5% per annum

Shares account
Interest
3.5% per annum

Ali invests ¢2000 in the cash savings account.
Ben invests ¢1600 in the shares account.

(a) Work out who will get the most interest by the end of 3 years.
You must show all your working.

(4)

In the 3rd year the rate of interest for the shares account is changed to 4% per annum.

(b) Does this affect who will get the most interest by the end of 3 years?
Give a reason for your answer.

.....

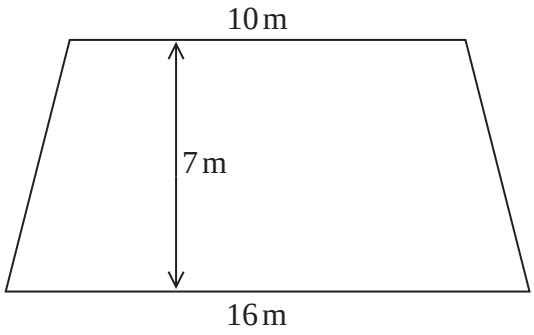
.....

.....

(1)

(Total for Question 107 is 5 marks)

108 The diagram shows a floor in the shape of a trapezium.



¢16.99

John is going to paint the floor.

Each 5 litre tin of paint costs ¢16.99
1 litre of paint covers an area of 2 m^2

John has ¢160 to spend on paint.

Has John got enough money to buy all the paint he needs?
You must show how you get your answer.

(Total for Question 108 is 5 marks)

109 Write $\frac{4}{50}$ as a percentage.

.....%

(Total for Question 109 is 1 mark)

---

110 (a) Change 35 cm to mm.

..... mm

(1)

(b) Change 7700 millilitres to litres.

..... litres

(1)

(c) Change 0.32 kilograms to grams.

..... grams

(1)

(Total for Question 110 is 3 marks)

---

111 Emily drives 186 miles in 3 hours.(a)

What is her average speed?

..... mph

(2)

Sarah drives at an average speed of 58 mph for 4 hours.

(b) How many miles does Sarah drive?

..... miles

(2)

(Total for Question 111 is 4 marks)

112 Here is the list of ingredients for making 30 biscuits.

Ingredients for 30 biscuits
225 g butter
110 g caster sugar
275 g plain flour
75 g chocolate chips

Lucas has the following ingredients.

900 g butter
1000 g caster sugar
1000 g plain flour
225 g chocolate chips

What is the greatest number of biscuits Lucas can make?
You must show your working.

.....

(Total for Question 112 is 3 marks)

113 Raya buys a van for ¢8500 plus VAT at 20%

Raya pays a deposit for the van.
She then pays the rest of the cost in 12 equal payments of ¢531.25 each month.

Find the ratio of the deposit Raya pays to the total of the 12 equal payments.
Give your answer in its simplest form.

.....

(Total for Question 113 is 5 marks)

114 A force of 70 newtons acts on an area of 20 cm^2

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

The force is increased by 10 newtons.
The area is increased by 10 cm^2

Helen says,

ěThe pressure decreases by less than 20%Ė

Is Helen correct?
You must show how you get your answer.

(Total for Question 114 is 3 marks)

115 60 students were asked how they get to school.

The table shows the results.

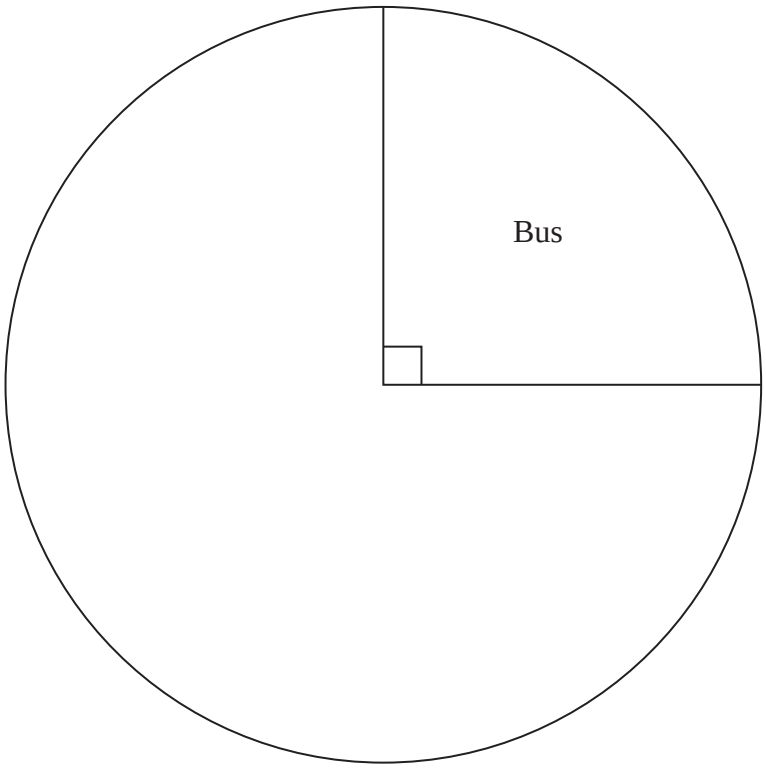
	Bus	**Walk**	**Car**	**Bicycle**
Number of students	15	27	12	6

(a) What fraction of the 60 students did **not** walk to school?

.....

(2)

(b) Complete the pie chart for the information in the table.



(4)

(Total for Question 115 is 6 marks)

116 Annie and Lily share some money in the ratio 4 : 3

(a) What fraction of the money does Lily get?

.....

(1)

Rosie and Dan share some sweets.

Dan gets $\frac{1}{4}$ of the sweets.

(b) Write down the ratio of the number of sweets Rosie gets to the number of sweets Dan gets.

.....

(1)

(Total for Question 116 is 2 marks)

117 Here is a map of an island.

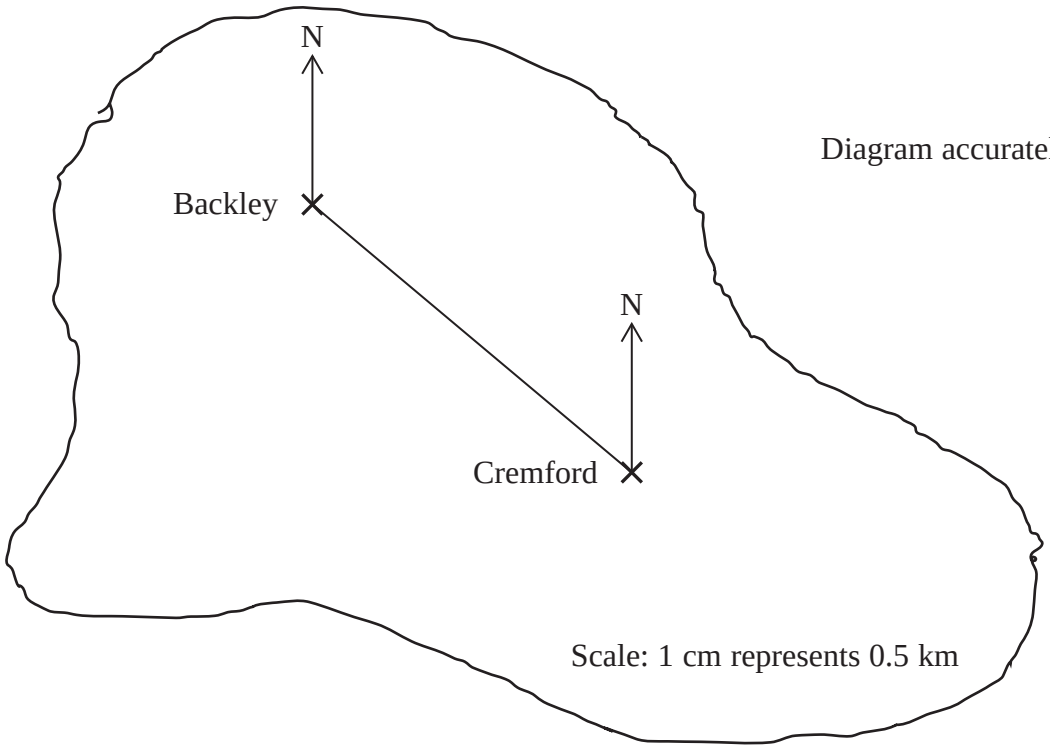


Diagram accurately drawn

A straight road joins the two villages, Backley and Cremford.

(a) Work out the real distance between the two villages.

.....km

(2)

(b) Find the bearing of Cremford from Backley.

.....°

(1)

(Total for Question 117 is 3 marks)

118 The table shows a cricket clubēs income in 2016 from a fete, a quiz and membership fees.

	Income	
Fete		¢250
Qui	Entry fees Refreshments	13 at ¢5 each ¢35
Membership fees		25 at ¢20 each

Express as a ratio

the income from the fete to the income from the quiz to the income from membership fees.

Give your ratio in its simplest form.

.....

(Total for Question 118 is 3 marks)

119 Ellie makes hats.
She makes at least 17 hats per hour.
She is paid 46p for each hat she makes.

Reaze is a waiter.
He works 35 hours and is paid a total of ¢266

Show that Ellieēs hourly rate of pay is more than Reazeēs hourly rate of pay.

(Total for Question 119 is 3 marks)

120 Emily buys a pack of 12 bottles of water.
The pack costs ¢5.64

Emily sells all 12 bottles for 50p each.

Work out Emilyēs percentage profit.
Give your answer correct to 1 decimal place.

.....%

(Total for Question 120 is 3 marks)

121 There are only blue cubes, yellow cubes and green cubes in a bag.

There are

twice as many blue cubes as yellow cubes
and four times as many green cubes as blue cubes.

Hannah takes at random a cube from the bag.

Work out the probability that Hannah takes a yellow cube.

.....

(Total for Question 121 is 3 marks)

122 On Saturday, some adults and some children were in a theatre.
The ratio of the number of adults to the number of children was 5 : 2

Each person had a seat in the Circle or had a seat in the Stalls.

$\frac{3}{4}$ of the children had seats in the Stalls.
117 children had seats in the Circle.

There are exactly 2600 seats in the theatre.

On this Saturday, were there people on more than 60% of the seats?
You must show how you get your answer.

(Total for Question 122 is 5 marks)

123 Olly drove 56 km from Liverpool to Manchester.
He then drove 61 km from Manchester to Sheffield.

Ollyēs average speed from Liverpool to Manchester was 70 km/h.
Olly took 75 minutes to drive from Manchester to Sheffield.

(a) Work out Ollyēs average speed for his total drive from Liverpool to Sheffield.

..... km/h

(4)

Janie drove from Barnsley to York.

Janieēs average speed from Barnsley to Leeds was 80 km/h.
Her average speed from Leeds to York was 60 km/h.

Janie says that the average speed from Barnsley to York can be found by working out the mean of 80 km/h and 60 km/h.

(b) If Janie is correct, what does this tell you about the two parts of Janieēs journey?

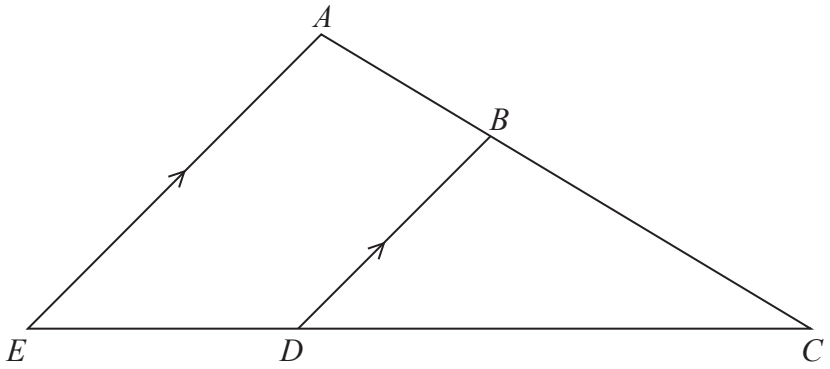
.....

.....

(1)

(Total for Question 123 is 5 marks)

124



ABC and *EDC* are straight lines.
EA is parallel to *DB*.

EC = 8.1 cm.
DC = 5.4 cm.
DB = 2.6 cm.

(a) Work out the length of *AE*.

..... cm

(2)

AC = 6.15 cm.

(b) Work out the length of *AB*.

..... cm

(2)

(Total for Question 124 is 4 marks)

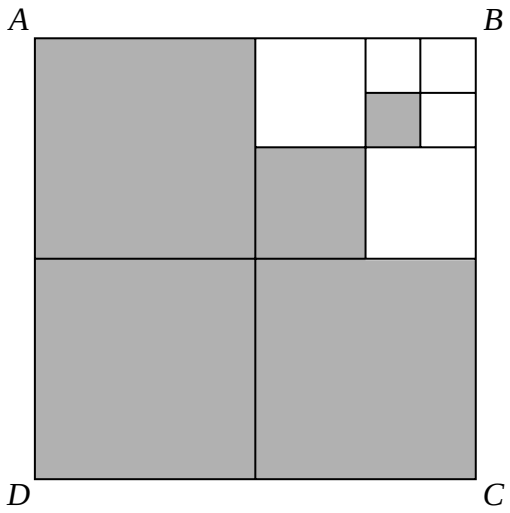
125 Anil wants to invest ¢25 000 for 3 years in a bank.

Personal Bank	**Secure Bank**
Compound Interest 2% for each year	Compound Interest 4.3% for the first year 0.9% for each extra year

Which bank will give Anil the most interest at the end of 3 years?
You must show all your working.

(Total for Question 125 is 3 marks)

126 *ABCD* is a square.
This diagram is drawn accurately.



What fraction of the square *ABCD* is shaded?

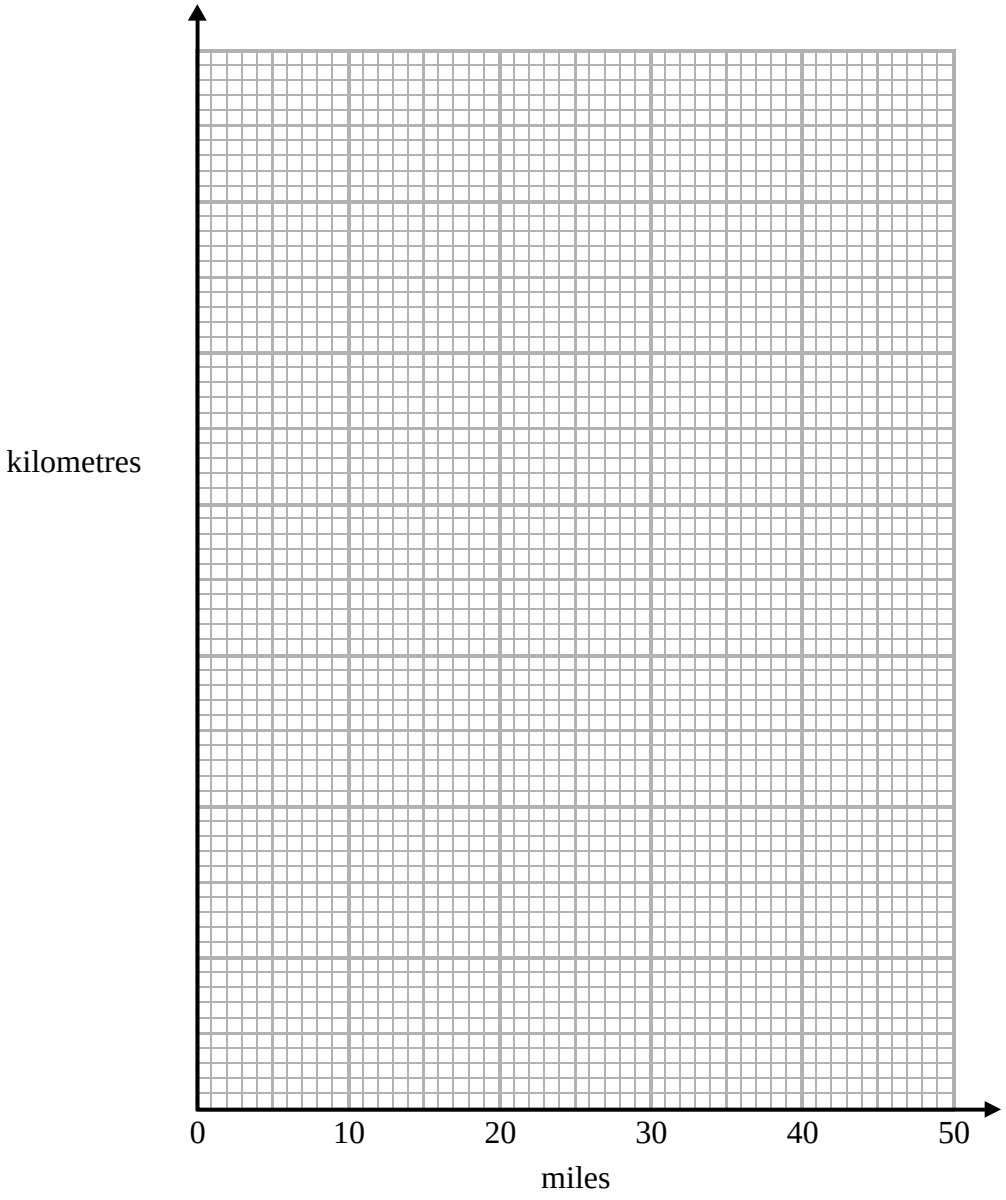
.....

(Total for Question 126 is 2 marks)

127 You can use the information in the table to convert between kilometres and miles.

miles	0	5	20	40
kilometres	0	8	32	64

(a) Use this information to draw a conversion graph.



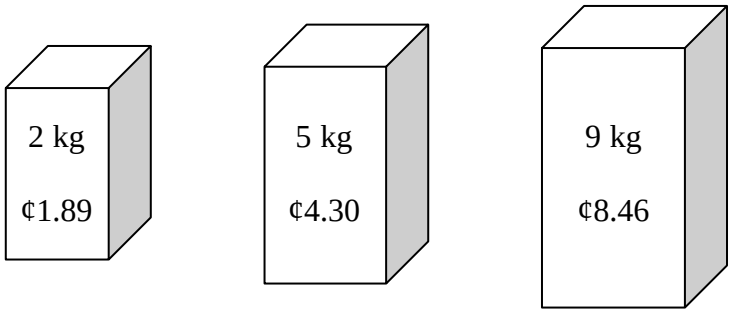
(3)

(b) Which is further, 20 kilometres or 15 miles?
You must show how you got your answer.

(2)

(Total for Question 127 is 5 marks)

128 Soap powder is sold in three sizes of box.



A 2 kg box of soap powder costs ¢1.89
A 5 kg box of soap powder costs ¢4.30
A 9 kg box of soap powder costs ¢8.46

Which size of box of soap powder is the best value for money?
You must show how you get your answer.

(Total for Question 128 is 3 marks)

129 Jane made some almond biscuits which she sold at a fete.

She had:
5 kg of flour
3 kg of butter
2.5 kg of icing sugar
320 g of almonds

Here is the list of ingredients for making 24 almond biscuits.

Ingredients for 24 almond biscuits
150 g flour
100 g butter
75 g icing sugar
10 g almonds

Jane made as many almond biscuits as she could, using the ingredients she had.

Work out how many almond biscuits she made.

.....

(Total for Question 129 is 3 marks)

130 Frank, Mary and Seth shared some sweets in the ratio 4 : 5 : 7
Seth got 18 more sweets than Frank.

Work out the total number of sweets they shared.

.....

(Total for Question 130 is 3 marks)

131 Axel and Lethna are driving along a motorway.

They see a road sign.
The road sign shows the distance to Junction 8
It also shows the average time drivers take to get to Junction 8

To Junction 8
30 miles
26 minutes

The speed limit on the motorway is 70 mph.

Lethna says

ěWe will have to drive faster than the speed limit to drive 30 miles in 26 minutes.Ė

Is Lethna right?
You must show how you get your answer.

(Total for Question 131 is 3 marks)

132 In a shop, the normal price of a coat is £65
The shop has a sale.

In week 1 of the sale, the price of the coat is reduced by 20%
In week 2 of the sale, the price of the coat is reduced by a further £10

Maria has £40

Does Maria have enough money to buy the coat in week 2 of the sale?
You must show how you get your answer.

(Total for Question 132 is 3 marks)

133 Here is a list of ingredients for making 16 mince pies.

Ingredients for 16 mince pies
240 g of butter 350 g of flour 100 g of sugar 280 g of mincemeat

Elaine wants to make 72 mince pies.

How much of each ingredient will Elaine need?

butter ..... g

flour ..... g

sugar ..... g

mincemeat ..... g

(Total for Question 133 is 3 marks)

134 Three companies sell the same type of furniture.

The price of the furniture from Pooles of London is £1480
The price of the furniture from Jardins of Paris is €1980
The price of the furniture from Outways of New York is $2250

The exchange rates are

£1 = €1.34

£1 = $1.52

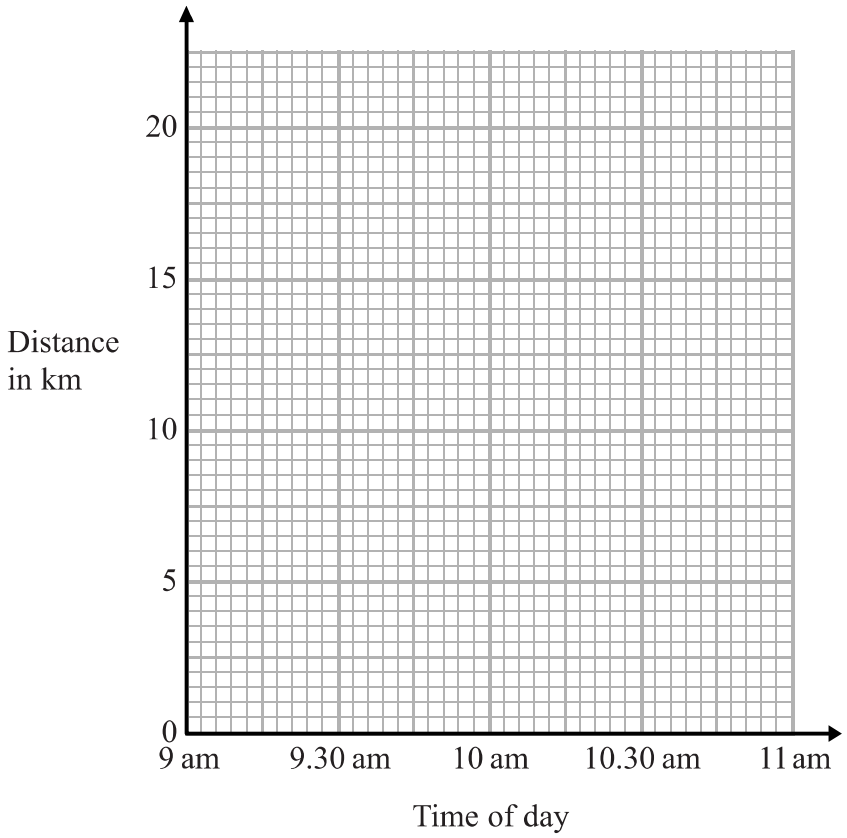
Which company sells this furniture at the lowest price?
You must show how you get your answer.

(Total for Question 134 is 3 marks)

135 At 9 am, Bradley began a journey on his bicycle.

From 9 am to 9.36 am, he cycled at an average speed of 15 km/h.
From 9.36 am to 10.45 am, he cycled a further 8 km.

(a) Draw a travel graph to show Bradley's journey.



(3)

From 10.45 am to 11 am, Bradley cycled at an average speed of 18 km/h.

(b) Work out the distance Bradley cycled from 10.45 am to 11 am.

..... km

(2)

(Total for Question 135 is 5 marks)

136 Toby invested £7500 for 2 years in a savings account.
He was paid 4% per annum compound interest.

How much money did Toby have in his savings account at the end of 2 years?

£ .....

(Total for Question 136 is 2 marks)

137 Becky has some marbles.
Chris has two times as many marbles as Becky.
Dan has seven more marbles than Chris.

They have a total of 57 marbles.

Dan says,
"If I give some marbles to Becky, each of us will have the same number of marbles."

Is Dan correct?
You must show how you get your answer.

(Total for Question 137 is 3 marks)

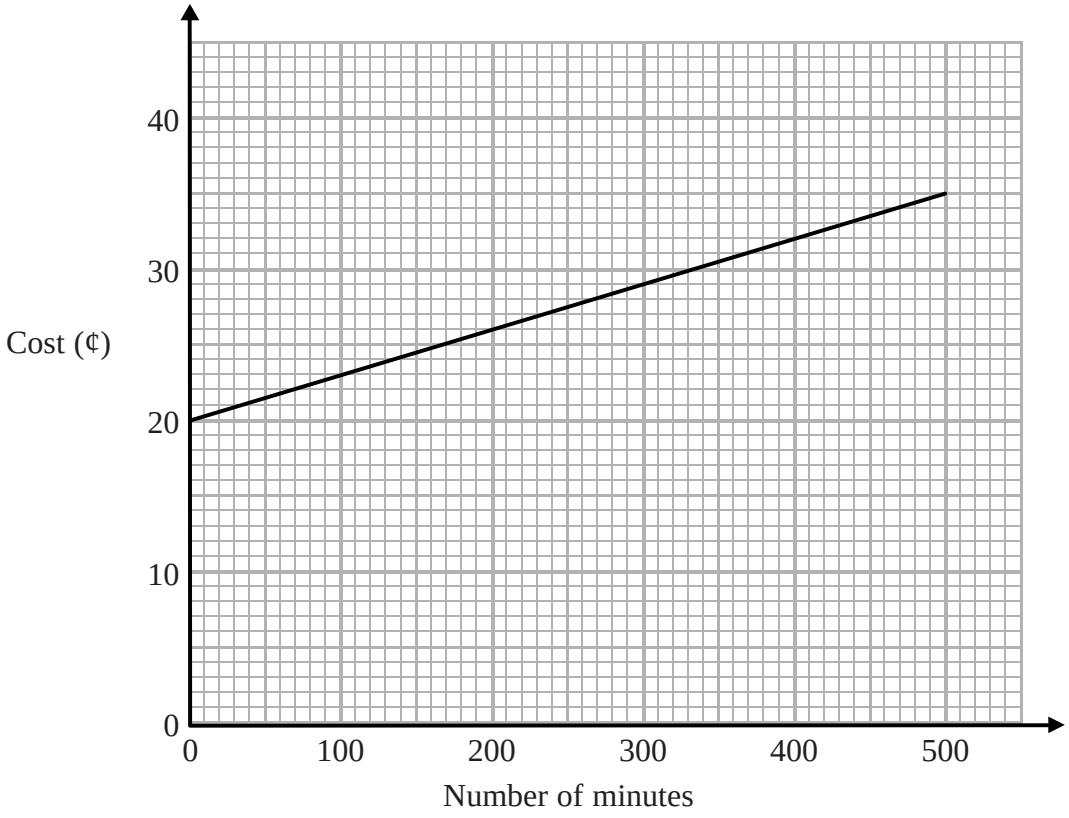
138 Abi invests ¢500 for 4 years in a bank account.
The account pays simple interest at a rate of 2.3% per year.

Work out the total amount of interest Abi has got at the end of 4 years.

¢ .....

(Total for Question 138 is 3 marks)

139 The graph shows the cost of using a mobile phone for one month for different numbers of minutes of calls made.



The cost includes a fixed rental charge of ¢20 and a charge for each minute of calls made.

Work out the charge for each minute of calls made.

.....

(Total for Question 139 is 2 marks)

140 Here is a list of ingredients for making chocolate mousse for 2 people.

Chocolate mousse
for 2 people

40 grams sugar
110 grams dark chocolate
2 eggs
$\frac{1}{4}$ teaspoon lemon juice

Ellie has 250 grams of sugar and 550 grams of dark chocolate.
She assumes that she has plenty of lemon juice and plenty of eggs.

(a) What is the greatest number of people Ellie can make chocolate mousse for?
You must justify your answer.

(3)

Ellie only has 6 eggs.

(b) What effect would this have on the greatest number of people Ellie can make chocolate mousse for?

.....

.....

(1)

(Total for Question 140 is 4 marks)

141 A sprinter runs a distance of 200 metres in 25 seconds.

Work out the average speed of the sprinter.

.....m/s

(Total for Question 141 is 1 mark)

142 There are 64 cards in a pack.
Each card is either red or black.
The ratio of the number of red cards to the number of black cards is 1 : 1

8 red cards are removed from the pack.

Find the ratio of the number of red cards now in the pack to the number of black cards now in the pack.
Give your answer in its simplest form.

.....

(Total for Question 142 is 3 marks)

143 Water flows through a pipe at a rate of 20 gallons per minute.

1 gallon = 4.55 litres.

Change 20 gallons per minute to litres per second.
Give your answer correct to 3 significant figures.

..... litres per second

(Total for Question 143 is 2 marks)

144 Write 45% as a decimal.

.....

(Total for Question 144 is 1 mark)

145 (a) Write 196 minutes in hours and minutes.

..... hours ..... minutes

(2)

A train travels x miles in 2 hours.

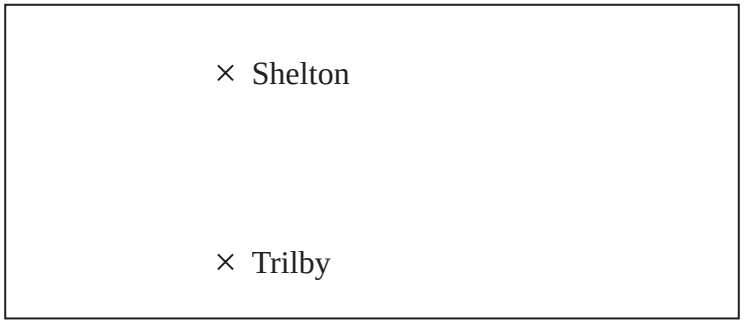
(b) Write down an expression, in terms of x, for the average speed of the train.

..... miles per hour

(1)

(Total for Question 145 is 3 marks)

146 The diagram shows two places on a map.



Scale: 1 centimetre represents 20 kilometres

(a) What is the actual distance, in kilometres, from Shelton to Trilby?

..... kilometres
(2)

On a scale drawing, the scale is given as 1 : 1200

(b) How many metres does 5 centimetres represent on this drawing?

..... metres
(2)

(Total for Question 146 is 4 marks)

147 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 147 is 4 marks)

148 Change 1 m^2 into cm^2

..... cm^2

(Total for Question 148 is 1 mark)

149 Natalie makes potato cakes in a restaurant.

She mixes potato, cheese and onion so that

weight of potato : weight of cheese : weight of onion = 9 : 2 : 1

Natalie needs to make 6000 g of potato cakes.

Cheese costs ¢2.25 for 175 g.

Work out the cost of the cheese needed to make 6000 g of potato cakes.

¢.....

(Total for Question 149 is 4 marks)

150 A water tank is empty.
Anil needs to fill the tank with 2400 litres of water.

Company **A** supplies water at a rate of 8 litres in 1 minute 40 seconds.
Company **B** supplies water at a rate of 2.2 gallons per minute.

1 gallon = 4.54 litres

Company **A** would take more time to fill the tank than Company **B** would take to fill the tank.

How much more time?
Give your answer in minutes correct to the nearest minute.

..... minutes

(Total for Question 150 is 4 marks)

151 Change 300 centimetres into metres.

..... metres

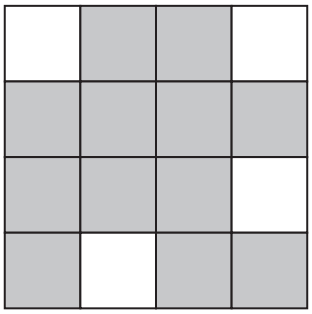
(Total for Question 151 is 1 mark)

152 Write 40% as a fraction.

.....

(Total for Question 152 is 1 mark)

153

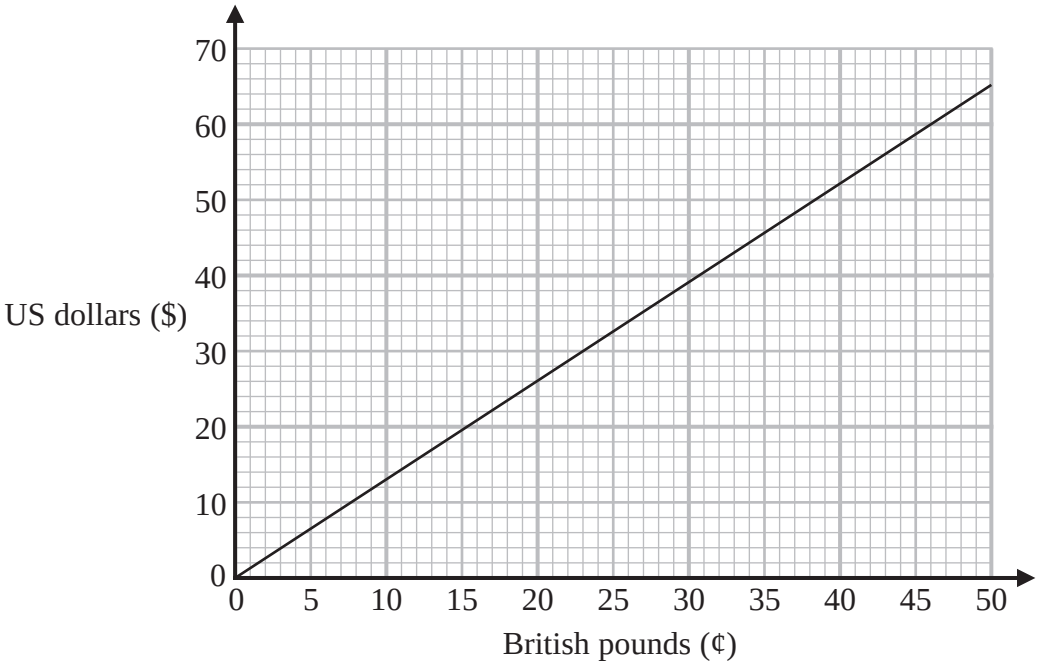


What fraction of the shape is shaded?
Give your answer in its simplest form.

.....

(Total for Question 153 is 2 marks)

154 This graph can be used to change between US dollars ($) and British pounds (¢).



Rosie bought a ring in the USA.
She paid 345 US dollars.

Work out in pounds the amount Rosie paid for the ring.

¢ .....

(Total for Question 154 is 3 marks)

155 Here are the types of sandwiches sold in a cafe last week.

Sandwiches
Tuna
Cheese
Chicken
Egg

56 tuna sandwiches were sold.
This was 40% of the total number of sandwiches sold.

(a) Work out the total number of sandwiches sold.

.....

(2)

Of the 56 tuna sandwiches sold, 18 were sold on Friday.

(b) Write 18 as a percentage of 56
Give your answer correct to the nearest whole number.

..... %

(2)

(Total for Question 155 is 4 marks)

156 Andy cycles a distance of 30 km at an average speed of 24 km/h.
He then runs a distance of 12 km at an average speed of 8 km/h.

Work out the total time Andy takes.
Give your answer in hours and minutes.

..... hours ..... minutes

(Total for Question 156 is 3 marks)

157 Maisie knows that she needs 3 kg of grass seed to make a rectangular lawn 5 m by 9 m.

Grass seed is sold in 2 kg boxes.

Maisie wants to make a rectangular lawn 10 m by 14 m.
She has 5 boxes of grass seed.

(a) Has Maisie got enough grass seed to make a lawn 10 m by 14 m?
You must show all your working.

(4)

Maisie opens the 5 boxes of grass seed.

She finds that 4 of the boxes contain 2 kg of grass seed.
The other box contains 1 kg of grass seed.

(b) Does this affect whether Maisie has enough grass seed to make her lawn?
Give a reason for your answer.

.....

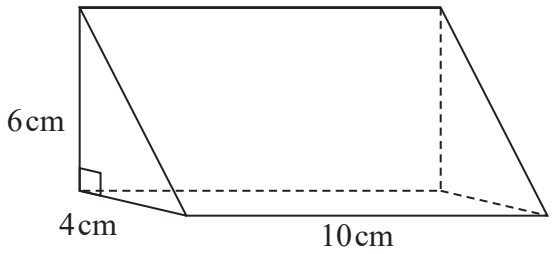
.....

.....

(1)

(Total for Question 157 is 5 marks)

158 The diagram shows a solid triangular prism.



The prism is made from wood with a density of 0.8 g/cm°

Work out the mass of this prism.

..... g

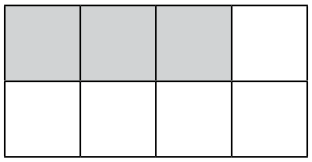
(Total for Question 158 is 3 marks)

159 Change 4 kilometres into metres.

..... metres

(Total for Question 159 is 1 mark)

160 Here is a grid of squares.



Write down the ratio of the number of shaded squares to the number of unshaded squares.

.....

(Total for Question 160 is 1 mark)

161 Dylan buys 13 bicycle lights for £7.50 each.
He pays with five £20 notes.

(a) How much change should Dylan get?

£.....

(3)

The normal price of a bicycle is £120

In a sale, there is $\frac{1}{5}$ off the normal price of the bicycle.

(b) Work out the price of the bicycle in the sale.

£.....

(2)

(Total for Question 161 is 5 marks)

162 Cornflakes are sold in two sizes of box.

Size of box	Weight of cornflakes
small	450 g
large	750 g

Rae buys 3 small boxes of cornflakes and some large boxes of cornflakes.
In total she buys 5850 g of cornflakes.

Work out the number of large boxes of cornflakes Rae buys.

.....

(Total for Question 162 is 3 marks)

163 There are 800 students at a school.
Each student has either a school dinner or a packed lunch.

31% of the students have packed lunches.

55% of the students are boys.
60% of the boys have school dinners.

How many girls have packed lunches?
You must show all your working.

.....

(Total for Question 163 is 4 marks)

164 Franco buys a house for £146 500
He sells the house for £158 220

Calculate the percentage profit Franco makes.

..... %

(Total for Question 164 is 3 marks)

165 Write $37\,cm^3$ in mm^3

..... mm^3

(Total for Question 165 is 1 mark)

166 Nimer was driving to a hotel.
He looked at his Sat Nav at 13 30

Time	13 30
Distance to destination	65 miles

Nimer arrived at the hotel at 14 48

Work out the average speed of the car from 13 30 to 14 48
You must show all your working.

..... mph

(Total for Question 166 is 4 marks)

167 Change 1.5 kilometres to metres.

..... metres

(Total for Question 167 is 1 mark)

168 Write 19% as a fraction.

.....

(Total for Question 168 is 1 mark)

169 Work out 20% of 80

.....

(Total for Question 169 is 2 marks)

170 Bill has 400 counters in a bag.

He gives
35 of the counters to Sameena
50 of the counters to Henry
75 of the counters to Lucas

What fraction of the 400 counters is left in Billēs bag?
Give your fraction in its simplest form.

.....

(Total for Question 170 is 3 marks)

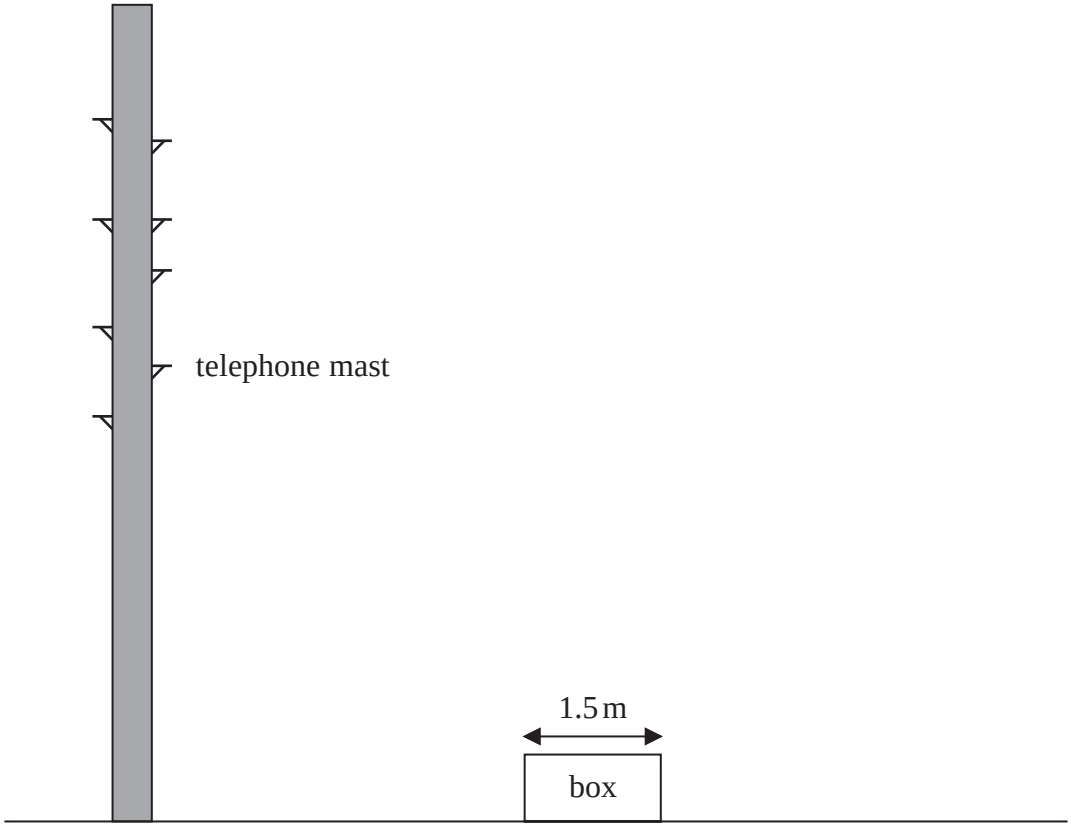
171 Ali, Ben and Cathy share an amount of money in the ratio 6 : 9 : 10

What fraction of the money does Ben get?

.....

(Total for Question 171 is 2 marks)

172 The accurate scale diagram shows a telephone mast and a box.



The box has a real width of 1.5 metres.

Find an estimate for the real height, in metres, of the telephone mast.

..... metres

(Total for Question 172 is 2 marks)

173 Liz goes on holiday to South Africa.

Liz wants to change ¢850 into South African rand.
She wants to get as many 200 rand notes as possible.

The exchange rate is ¢1 = 18.53 rand.

Work out the greatest number of 200 rand notes that Liz can get for ¢850

.....

(Total for Question 173 is 3 marks)

174 In October Sally drove 560 miles in her car.
The car travelled 34.5 miles for each gallon of petrol used.

Petrol cost ¢1.08 per litre.
1 gallon = 4.55 litres.

Work out the cost of the petrol the car used in October.

¢.....

(Total for Question 174 is 4 marks)

175 Katy invests ¢200 000 in a savings account for 4 years.
The account pays compound interest at a rate of 1.5% per annum.

Calculate the total amount of interest Katy will get at the end of 4 years.

¢.....

(Total for Question 175 is 3 marks)

176 Write 3% as a fraction.

.....

(Total for Question 176 is 1 mark)

177 Shaun is 1.88 m tall.

David is 6 cm taller than Shaun.

How tall is David?

.....

(Total for Question 177 is 2 marks)

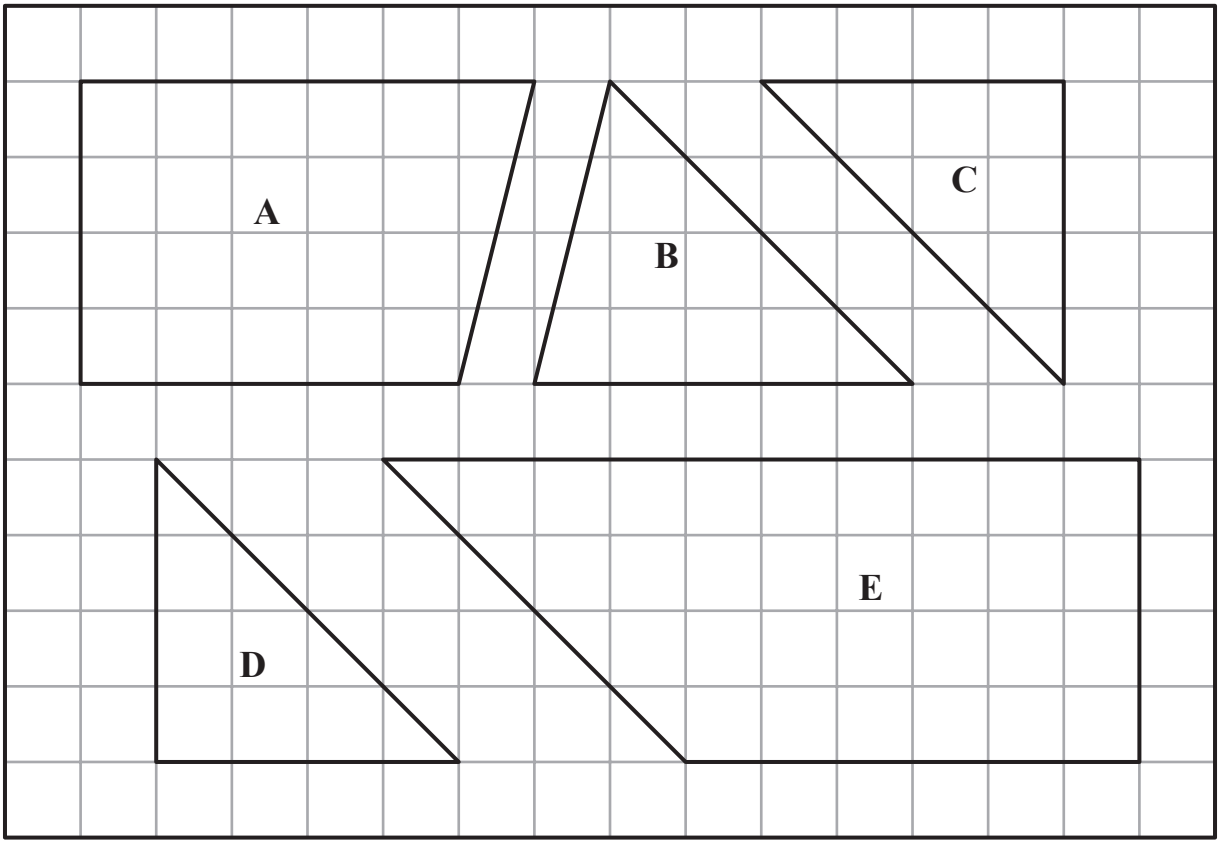
178 2 pens cost ¢2.38
5 folders cost ¢5.60

Ben wants to buy 20 pens and 20 folders.
He only has ¢50

Does Ben have enough money to buy 20 pens and 20 folders?
You must show how you get your answer.

(Total for Question 178 is 4 marks)

179 The diagram shows five shapes on a centimetre grid.



(a) Write down the name of shape **E**.

.....

(1)

Two of the shapes are congruent.

(b) Write down the letters of these two shapes.

..... and .....

(1)

(Total for Question 179 is 2 marks)

180 There are men and women at a meeting.

There are 28 women.
30% of the people at the meeting are men.

Work out the total number of people at the meeting.

.....

(Total for Question 180 is 3 marks)

181 Write down the ratio of 450 grams to 15 grams.
Give your answer in its simplest form.

.....

(Total for Question 181 is 2 marks)

182 Last year Jo paid ¢245 for her car insurance.
This year she has to pay ¢883 for her car insurance.

Work out the percentage increase in the cost of her car insurance.

.....%

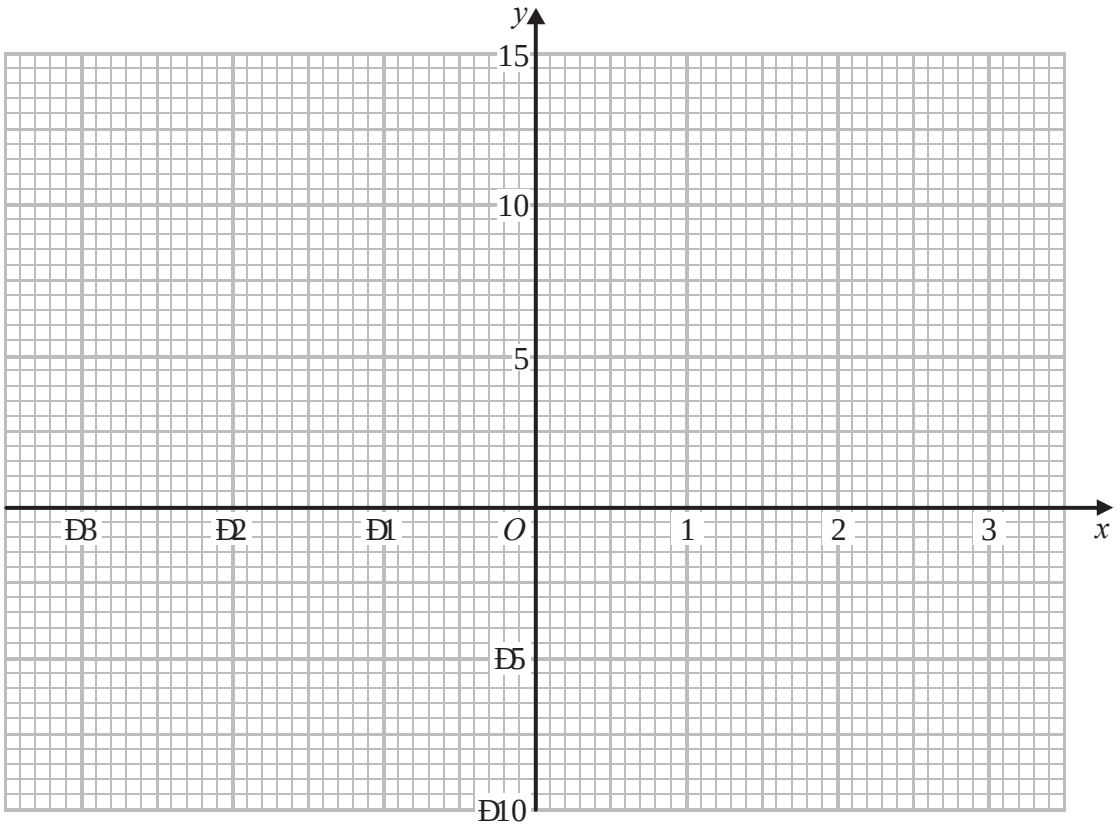
(Total for Question 182 is 3 marks)

183 (a) Complete this table of values for $y = x^2 + x - 4$

x	−3	−2	−1	0	1	2	3
y		−2	−4		−2		

(2)

(b) On the grid, draw the graph of $y = x^2 + x - 4$ for values of x from −3 to 3



(2)

(c) Use the graph to estimate a solution to $x^2 + x - 4 = 0$

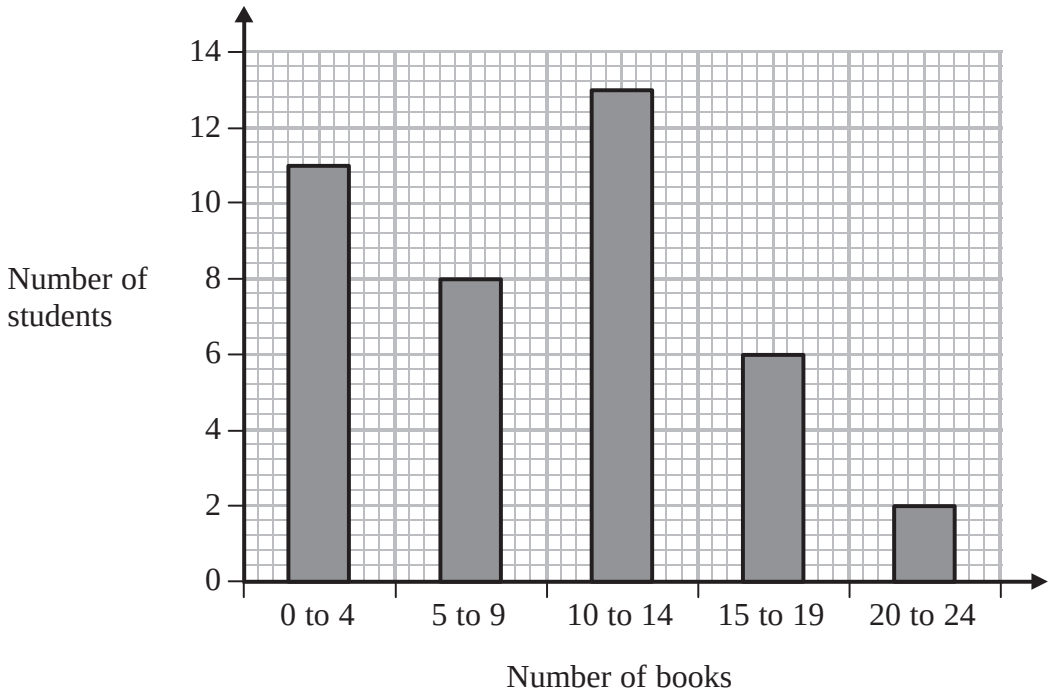
.....

(1)

(Total for Question 183 is 5 marks)

184 Fran asks each of 40 students how many books they bought last year.

The chart below shows information about the number of books bought by each of the 40 students.



(a) Work out the percentage of these students who bought 20 or more books.

.....%

(2)

(Total for Question 184 is 2 marks)

185 Lara is a skier.

She completed a ski race in 1 minute 54 seconds.
The race was 475 m in length.

Lara assumes that her average speed is the same for each race.

(a) Using this assumption, work out how long Lara should take to complete a 700 m race.
Give your answer in minutes and seconds.

..... minutes ..... seconds

(3)

Laraēs average speed actually increases the further she goes.

(b) How does this affect your answer to part (a)?

.....

.....

(1)

(Total for Question 185 is 4 marks)

186 Write 0.3 as a percentage.

.....%

(Total for Question 186 is 1 mark)

187 David has twice as many cousins as Becky.
Becky has twice as many cousins as Nishat.

Nishat has 6 cousins.

How many cousins does David have?

.....

(Total for Question 187 is 2 marks)

188 Bronwin works in a restaurant.

The table gives her rates of pay.

Day	**Rate of pay**
Monday to Friday	¢8.40 per hour
Weekend	¢11.20 per hour

Bronwin worked for a total of 20 hours last week.
She worked 8 of these 20 hours at the weekend.

Show that Bronwin was paid less than ¢200 last week.

(Total for Question 188 is 3 marks)

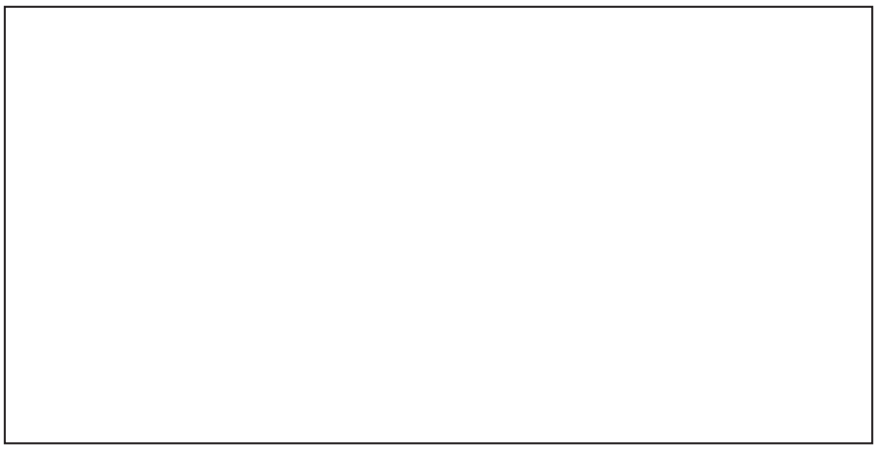
189 Last year the cost of a season ticket for a football club was ¢560
This year the cost of a season ticket for the club has been increased to ¢600

Write down the increase in the cost of a season ticket as a fraction of last year's cost.

.....

(Total for Question 189 is 2 marks)

190 The diagram shows a scale drawing of a tennis court.



The scale of the drawing is 1 : 200

Work out the perimeter of the real tennis court.
Give your answer in metres.

..... metres

(Total for Question 190 is 5 marks)

191 Alan, Bispah and Chan share a sum of money.

Alan gets $\frac{1}{8}$ of the money.

Bispah gets $\frac{1}{2}$ of the money.

Chan gets the rest of the money.

Alan gets ¢2.50

(a) Work out how much money Bispah gets.

¢.....

(2)

(b) Find the ratio

amount of money Alan gets : amount of money Chan gets

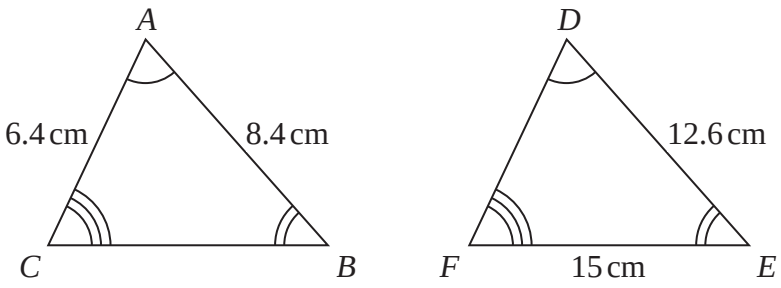
Give your answer in the form $a : b$ where a and b are whole numbers.

.....

(3)

(Total for Question 191 is 5 marks)

192 Triangle *ABC* and triangle *DEF* are similar.



(a) Work out the length of *DF*.

..... cm

(2)

(b) Work out the length of *CB*.

..... cm

(2)

(Total for Question 192 is 4 marks)

193 The table gives information about the prices of cinema tickets.

Cinema ticket	Price
adult ticket	¢7.80
child ticket	¢5.80
family ticket (for 4 people)	¢24.30

Mr Edwards and his 3 children go to the cinema.

It is cheaper for Mr Edwards to buy 1 family ticket rather than 4 separate tickets.

(a) How much cheaper?

.....

(3)

The film starts at 6.45 pm.
The film lasts 102 minutes.

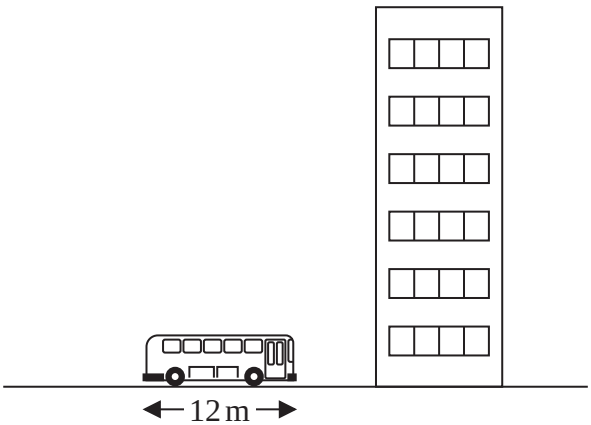
(b) What time does the film finish?

.....

(2)

(Total for Question 193 is 5 marks)

194



The picture shows a bus next to a building.
The bus has a length of 12 m.

The bus and the building are drawn to the same scale.

Work out an estimate for the height, in metres, of the building.

..... m

(Total for Question 194 is 2 marks)

195 2.5 kg of apples cost ¢3.60

Work out the cost of 3.5 kg of apples.

¢.....

(Total for Question 195 is 2 marks)

196 The ratio of the cost of one metre of cotton fabric to the cost of one metre of silk fabric is 2 : 5

Complete the table of costs.

	2 m	**6 m**	**8 m**	**9 m**
cotton fabric	¢6			
silk fabric				

(Total for Question 196 is 3 marks)

197 In London, 1 litre of petrol costs 108.9p
In New York, 1 US gallon of petrol costs $2.83

1 US gallon = 3.785 litres
¢1 = $1.46

In which city is petrol better value for money, London or New York?
You must show your working.

(Total for Question 197 is 3 marks)

198 A gold bar has a mass of 12.5 kg.

The density of gold is 19.3 g/cm^3

Work out the volume of the gold bar.
Give your answer correct to 3 significant figures.

..... cm^3

(Total for Question 198 is 3 marks)

199 There are only blue pens, green pens and red pens in a box.

The ratio of the number of blue pens to the number of green pens is 2 : 5
The ratio of the number of green pens to the number of red pens is 4 : 1

There are less than 100 pens in the box.

What is the greatest possible number of red pens in the box?

.....

(Total for Question 199 is 3 marks)

200 A path is made of white tiles and grey tiles.

$\frac{1}{4}$ of the tiles are white.

(a) Write down the ratio of white tiles to grey tiles.

.....

(1)

There is a total of 56 tiles.

(b) Work out the number of grey tiles.

.....

(2)

(Total for Question 200 is 3 marks)

201 Davos is a cleaner.

The table shows information about the time it will take him to clean each of four rooms in a house.

Room	Time
Kitchen	2 hours
Sitting room	1 hour 40 minutes
Bedroom	$1\frac{1}{2}$ hours
Bathroom	45 minutes

Davos wants to clean all four rooms in one day.
He will have breaks for a total time of 75 minutes.

Davos is going to start cleaning at 9 am.

Will he finish cleaning by 4 pm?
You must show all your working.

(Total for Question 201 is 3 marks)

202 ABC is a straight line.

The length AB is five times the length BC.
$AC = 90$ cm.

Work out the length AB.

.....cm

(Total for Question 202 is 3 marks)

203 Andy went on holiday to Canada.
His flights cost a total of ¢1500

Andy stayed for 14 nights.
His hotel room cost $196 per night.

Andy used wifi for 12 days.
Wifi cost $5 per day.

The exchange rate was $1.90 to ¢1

(a) Work out the total cost of the flights, the hotel room and wifi.
Give your answer in pounds.

¢.....

(5)

(b) If there were fewer dollars to ¢1, what effect would this have on the total cost, in pounds, of Andyēs holiday?

.....

(1)

(Total for Question 203 is 6 marks)

204 The density of apple juice is 1.05 grams per cm^3.

The density of fruit syrup is 1.4 grams per cm^3.

The density of carbonated water is 0.99 grams per cm^3.

25 cm^3 of apple juice are mixed with 15 cm^3 of fruit syrup and
280 cm^3 of carbonated water to make a drink with a volume of 320 cm^3.

Work out the density of the drink.
Give your answer correct to 2 decimal places.

.....g/cm^3

(Total for Question 204 is 4 marks)

205 Harleyēs house has a value of ¢160 000 correct to 2 significant figures.

The value of Ritaēs house increased by 5%.
Her house then had a value of ¢210 000

Work out the value of Ritaēs house before the increase.

¢ .....

(2)

(Total for Question 205 is 4 marks)

206 There are 6760 people at at a rugby match.
3879 of the people are men.
1241 of the people are women.

$\frac{1}{4}$ of the children are girls.

Work out how many boys are at the rugby match.

.....

(Total for Question 206 is 3 marks)

207 The total weight of 3 tins of beans and 4 jars of jam is 2080 g.
The total weight of 5 tins of beans is 2000 g.

Work out the weight of 1 tin of beans and the weight of 1 jar of jam.

tin of beans..... g

jar of jam..... g

(Total for Question 207 is 4 marks)

208 Change 72 km/h into m/s.

.....m / s

(Total for Question 208 is 3 marks)

209 Asif is going on holiday to Turkey.

The exchange rate is £1 = 3.5601 lira.

Asif changes £550 to lira.

(a) Work out how many lira he should get.
Give your answer to the nearest lira.

..... lira

(2)

Asif sees a pair of shoes in Turkey.
The shoes cost 210 lira.

Asif does not have a calculator.
He uses £2 = 7 lira to work out the approximate cost of the shoes in pounds.

(b) Use £2 = 7 lira to show that the approximate cost of the shoes is £60

(2)

(c) Is using £2 = 7 lira instead of using £1 = 3.5601 lira a sensible start to Asif's method to work out the cost of the shoes in pounds?

You must give a reason for your answer.

.....

.....

(1)

(Total for Question 209 is 5 marks)

210 Henry is thinking of having a water meter.

These are the two ways he can pay for the water he uses.

Water Meter

A charge of £28.20 per year

plus

91.22p for every cubic metre of water used

1 cubic metre = 1000 litres

No Water Meter

A charge of £107 per year

Henry uses an average of 180 litres of water each day.

Use this information to determine whether or not Henry should have a water meter.

(Total for Question 210 is 5 marks)

211 A and B are two companies.

The table shows some information about the sales of each company and the number of workers for each company in 2004 and in 2014

	Company A		Company B	
	Sales (£ millions)	**Number of workers**	**Sales (£ millions)**	**Number of workers**
2004	320	2960	48	605
2014	388	3200	57	640

(a) Work out the percentage increase in sales from 2004 to 2014 for Company A.

..... %

(2)

(b) Which company had the most sales per worker in 2014, Company A or Company B?
You must show how you get your answer.

(3)

(Total for Question 211 is 5 marks)

212 There are 1.5 litres of water in a bottle.

There are 250 millilitres of water in another bottle.

Work out the total amount of water in the two bottles.

.....

(Total for Question 212 is 3 marks)

213 There are 5 grams of fibre in every 100 grams of bread.

A loaf of bread has a weight of 400 g.
There are 10 slices of bread in a loaf.

Each slice of bread has the same weight.

Work out the weight of fibre in one slice of bread.

..... g

(Total for Question 213 is 3 marks)

214 In a breakfast cereal, 40% of the weight is fruit.
The rest of the cereal is oats.

(a) Write down the ratio of the weight of fruit to the weight of oats.
Give your answer in the form 1 : n.

.....

(2)

A different breakfast cereal is made using only fruit and bran.
The ratio of the weight of fruit to the weight of bran is 1 : 3

(b) What fraction of the weight of this cereal is bran?

.....

(1)

(Total for Question 214 is 3 marks)

215 Boxes of chocolates cost £3.69 each.
A shop has an offer.

Boxes of chocolates
3 for the price of 2

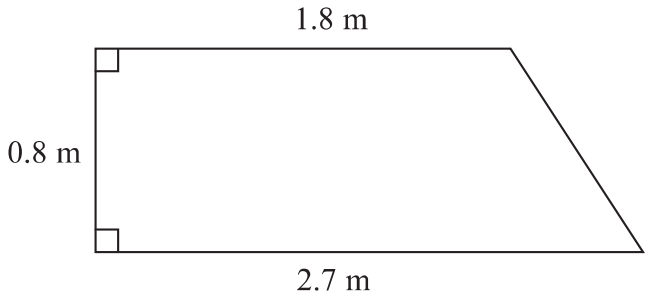
Ali has £50
He is going to get as many boxes of chocolates as possible.

How many boxes of chocolates can Ali get?

.....

(Total for Question 215 is 3 marks)

216 The diagram shows part of a wall in the shape of a trapezium.



Karen is going to cover this part of the wall with tiles.
Each rectangular tile is 15 cm by 7.5 cm

Tiles are sold in packs.
There are 9 tiles in each pack.

Karen divides the area of the wall by the area of a tile to work out an estimate for the number of tiles she needs to buy.

Karen is advised to buy 10% more tiles than she estimated.
Buying 10% more tiles will affect the number of the tiles Karen needs to buy.

She assumes she will need to buy 10% more packs of tiles.

Is Karen's assumption correct?
You must show your working.

(2)

(Total for Question 216 is 2 marks)

217 The densities of two different liquids A and B are in the ratio 19 : 22

The mass of 1 cm^3 of liquid B is 1.1 g.

5 cm^3 of liquid A is mixed with 15 cm^3 of liquid B to make 20 cm^3 of liquid C.

Work out the density of liquid C.

..... g/cm^3

(Total for Question 217 is 4 marks)

218 Change 4500 g to kg.

..... kg

(Total for Question 218 is 1 mark)

219 Coffee is sold in jars.
There are 200 g of coffee in each jar.

Ben makes 8 cups of coffee each day.
He thinks he uses 2 g of coffee to make each cup of coffee.

Ben wants to buy enough coffee for 28 days.

(a) How many jars of coffee does Ben need to buy?

.....

(3)

Ben finds that he uses 2.5 g of coffee to make each cup of coffee.

(b) How does this affect the number of jars of coffee he needs to buy?
You must give a reason for your answer.

.....

.....

(2)

(Total for Question 219 is 5 marks)

220 A model plane has a length of 17 cm.

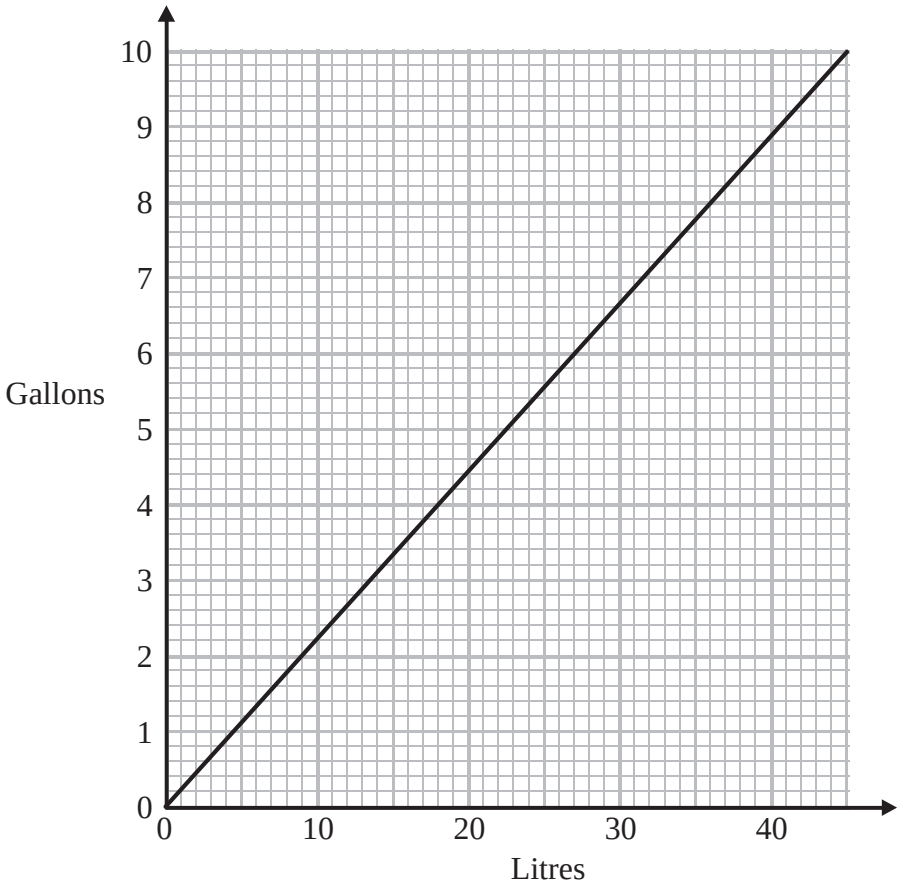
The scale of the model is 1 : 200

Work out the length of the real plane.
Give your answer in metres.

..... metres

(Total for Question 220 is 2 marks)

221 You can use this graph to change between litres and gallons.



Which is the greater, 60 litres or 12 gallons?
You must show how you get your answer.

.....

(Total for Question 221 is 2 marks)

222 Ibrar buys 3 kg of apples.
He also buys 0.4 kg of mushrooms.
The total cost is £6.93

1 kg of apples cost £1.95

Work out the cost of 1 kg of mushrooms.

£ .....

(Total for Question 222 is 3 marks)

223 There are 35 pens in a box.
15 of the pens are green.
The rest of the pens are red.

(a) What fraction of the pens in the box are red?

.....

(1)

(b) Write down the ratio of the number of green pens to the number of red pens.
Give your ratio in its simplest form.

.....

(2)

(Total for Question 223 is 3 marks)

224 Amelia, Hayden and Sophie did a test.
The total for the test was 75 marks.

Amelia got 56% of the 75 marks.

Hayden got $\frac{8}{15}$ of the 75 marks.

Sophie got 43 out of 75

Who got the highest mark?
You must show all your working.

(Total for Question 224 is 3 marks)

225 The ratio of the number of boys to the number of girls in a school is 4:5
There are 95 girls in the school.

Work out the total number of students in the school.

.....

(Total for Question 225 is 3 marks)

226 At a depth of x metres, the temperature of the water in an ocean is T °C.
At depths below 900 metres, T is inversely proportional to x.

T is given by

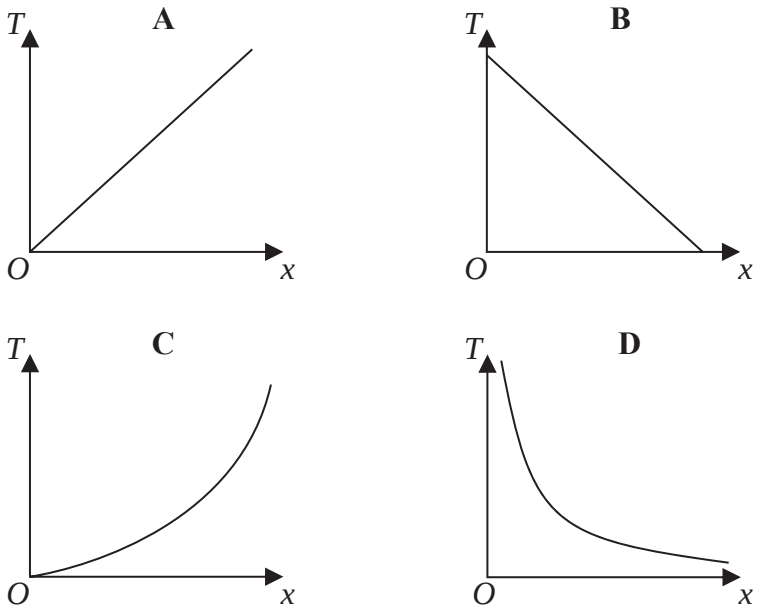
$$T = \frac{4500}{x}$$

(a) Work out the difference in the temperature of the water at a depth of 1200 metres and the temperature of the water at a depth of 2500 metres.

.....°C

(3)

Here are four graphs.



One of the graphs could show that T is inversely proportional to x.

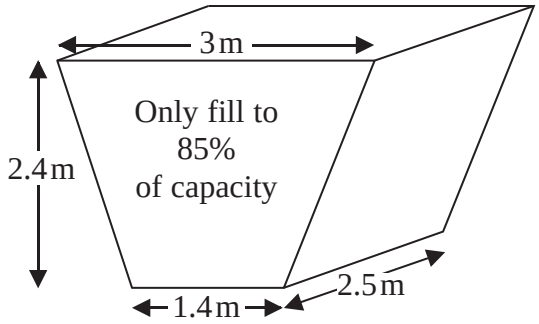
(b) Write down the letter of this graph.

.....

(1)

(Total for Question 226 is 4 marks)

227 The diagram shows an oil tank in the shape of a prism.
The cross section of the prism is a trapezium.



The tank is empty.

Oil flows into the tank.
After one minute there are 300 litres of oil in the tank.

Assume that oil continues to flow into the tank at this rate.

(a) Work out how many **more** minutes it takes for the tank to be 85% full of oil.
($1\,m^3 = 1000$ litres)

..... minutes
(5)

The assumption about the rate of flow of the oil could be wrong.

(b) Explain how this could affect your answer to part (a).

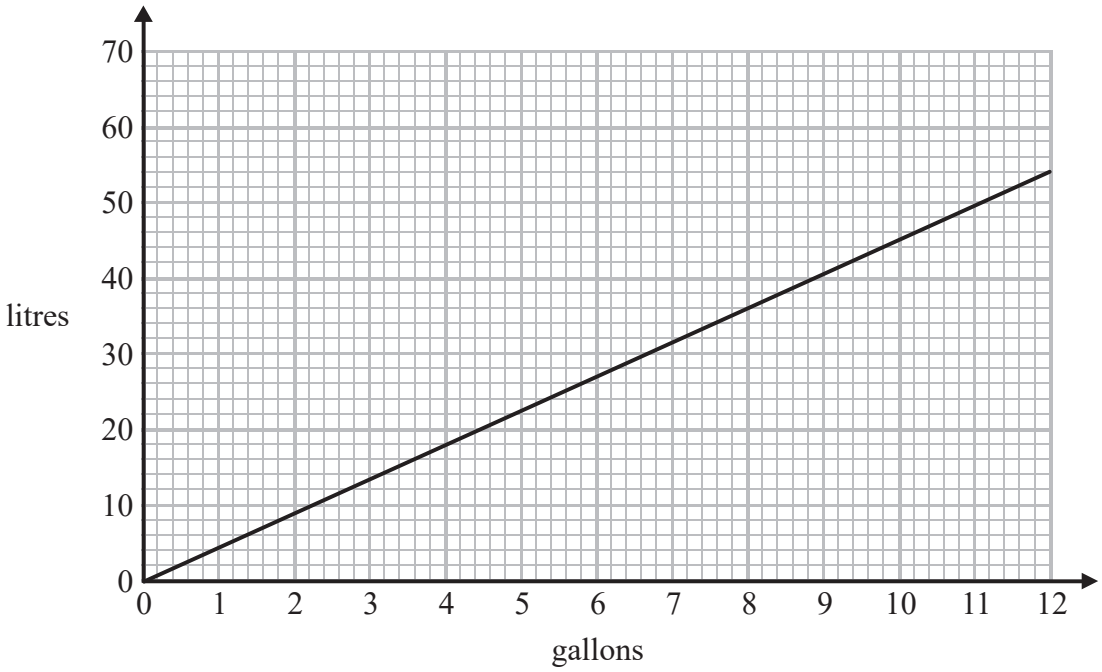
.....

.....

(1)

(Total for Question 227 is 6 marks)

228 You can use this graph to change between gallons and litres.



(a) Change 36 litres to gallons.

..... gallons

(1)

The fuel tank of a bus holds 450 litres of fuel when completely full.

The fuel tank is empty.

Kerrie puts 90 gallons of fuel in the fuel tank.

*(b) Is the fuel tank completely full?
You must show how you get your answer.

(3)

(Total for Question 228 is 4 marks)

229 Matthew has a job.
His normal hourly rate of pay is £10

His overtime hourly rate of pay is $1\frac{1}{2}$ times his normal hourly rate of pay.

Matthew is paid at the normal hourly rate for 7 hours work each day, Monday to Friday.
He does **not** work on Saturday or Sunday.

Here is a table showing the number of hours of overtime he worked each day this week.

	Mon	**Tues**	**Wed**	**Thur**	**Fri**
Overtime (hours)	3	2	0	1	3

Work out Matthew's total pay for this week.

£.....

(Total for Question 229 is 5 marks)

***230** Bill buys and sells laptops.

Last month Bill bought 50 laptops.
He paid £400 for each laptop.

He sold
40 of these laptops at a profit of 30% on each laptop
10 of these laptops at a profit of 15% on each laptop

Bill's target last month was to sell all 50 laptops for a total of at least £25 000

Did Bill reach this target?

(Total for Question 230 is 5 marks)

231 Babajan makes breakfast cereal.
She mixes nuts, raisins and oats in the ratio 3 : 2 : 5 by weight.

On Monday, Babajan uses 60 grams of nuts.

(a) Work out the weight of raisins and the weight of oats she uses to make the breakfast cereal.

raisins ..... grams

oats ..... grams

(3)

On Tuesday, Babajan makes 300 grams of the breakfast cereal.

500 grams of nuts cost £8

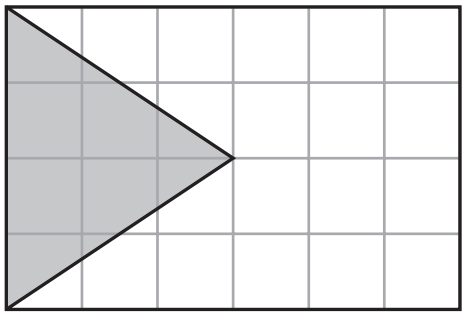
(b) Work out the cost of the nuts used to make 300 grams of the breakfast cereal.

£ .....

(3)

(Total for Question 231 is 6 marks)

232 The diagram shows a flag drawn on a grid of squares.



(a) Colin says that $\frac{1}{4}$ of the flag is shaded.

Colin is right.
Explain why.

.....

.....

.....

.....

(2)

(b) What percentage of the flag is **not** shaded?

..... %

(1)

(Total for Question 232 is 3 marks)

233 There are some red counters and some yellow counters in a bag in the ratio 1 : 5

(a) What fraction of the counters in the bag are red?

.....

(1)

There are 20 yellow counters in the bag.

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

.....

(2)

Janet puts some more red counters into the bag.
The ratio of the number of red counters to the number of yellow counters is now 1 : 2

(c) How many red counters does Janet put into the bag?

.....

(2)

(Total for Question 233 is 5 marks)

***234** Two shops, Mega Bathrooms and Bathroom Mart, each have a sale.

Mega Bathrooms	**Bathroom Mart**
Sale 60% off normal price **then** 15% off	Sale $\frac{2}{3}$ off normal price

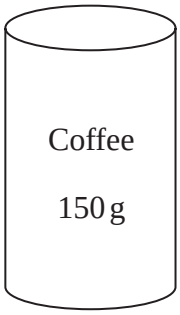
Sally wants to buy some bathroom units.
The units have a normal price of £1500

Sally wants to buy the units as cheaply as possible.

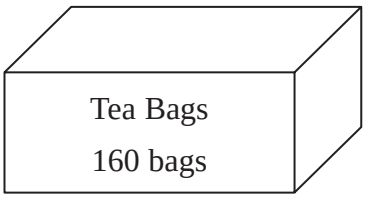
Which shop should she buy the units from?
You must show all your working.

(Total for Question 234 is 4 marks)

235 Adam owns a cafe.



£4



£4.50

There are 150 grams of coffee in each jar of coffee, costing £4
There are 160 tea bags in each box of tea bags, costing £4.50

Adam uses
3 grams of coffee to make each cup of coffee
and 1 tea bag to make each mug of tea.

Adam buys enough jars of coffee to make 300 cups of coffee.
He also buys enough boxes of tea bags to make 500 mugs of tea.

(a) Work out the total cost.

£.....

(5)

Adam also sells cakes in his cafe.

On Friday afternoon, Adam had **no** cakes to sell.

On Saturday morning, 6 trays of cakes were delivered to the cafe.
There were 30 cakes in each tray.

When the cafe closed on Saturday, 12 of these cakes had **not** been sold.

(b) Work out how many cakes were sold on Saturday.

.....

(3)

(Total for Question 235 is 8 marks)

236 The table gives some information about Charlie's spending last month.

Item	Percentage of total spending
rent	
food	15%
transport	12%
other	43%

(a) Work out what percentage of his total spending was on rent.

.....%

(1)

Charlie's total spending last month was £800

(b) How much did Charlie spend on food last month?

£.....

(2)

(Total for Question 236 is 3 marks)

237 A farmer has 37 kg of potatoes.

He puts some of the potatoes into a small sack.
He puts the rest of the potatoes into a large sack.

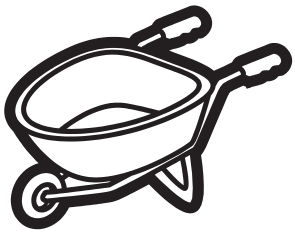
The total weight of the potatoes in the large sack is 13 kg more than the total weight of the potatoes in the small sack.

(a) What is the total weight of the potatoes in the small sack?

..... kg

(2)

There are 30 kg of potatoes in a wheelbarrow.



The farmer puts some carrots into the wheelbarrow.
The total weight of the potatoes and the carrots in the wheelbarrow is 110 pounds.

(b) What weight of carrots did the farmer put into the wheelbarrow?
1 kg = 2.2 pounds

.....

(4)

(Total for Question 237 is 6 marks)

238 Sean wants to go on holiday.
He is going to get a loan of £720 to help pay for the holiday.

Sean will have to pay back the £720 plus interest of 15%.
He will pay this back in 12 equal monthly installments.

How much money will Sean pay back each month?

£ .....

(Total for Question 238 is 4 marks)

239 Here are the ingredients needed to make **8** shortbread biscuits.

Shortbread biscuits makes **8** biscuits
120 g butter 60 g caster sugar 180 g flour

Tariq is going to make some shortbread biscuits.
He has the following ingredients

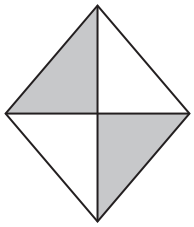
330 g butter 200 g caster sugar 450 g flour

Work out the greatest number of shortbread biscuits that Tariq can make with his ingredients.
You must show all your working.

..... biscuits

(Total for Question 239 is 3 marks)

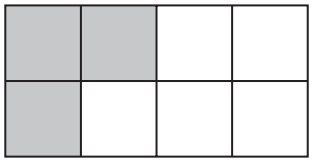
240 (a) Write down the percentage of this shape that is shaded.



..... %

(1)

(b) Write down the fraction of this shape that is shaded.



.....

(1)

(c) Shade $\frac{1}{5}$ of this shape.

(1)

Here are some fractions.

$\frac{3}{10}$ $\frac{2}{8}$ $\frac{4}{12}$ $\frac{12}{40}$ $\frac{5}{20}$

Two of these fractions are equivalent to $\frac{1}{4}$

(d) Which two fractions?

..... and .....

(2)

(Total for Question 240 is 5 marks)

***241** Tom is going to buy 25 plants to make a hedge.

Here is information about the cost of buying the plants.

Kirsty's Plants	**Hedge World**
£2.39 each	Pack of 25 £52.50 plus VAT at 20%

Tom wants to buy the 25 plants as cheaply as possible.

Should Tom buy the plants from Kirsty's Plants or from Hedge World?
You must show all your working.

(Total for Question 241 is 5 marks)

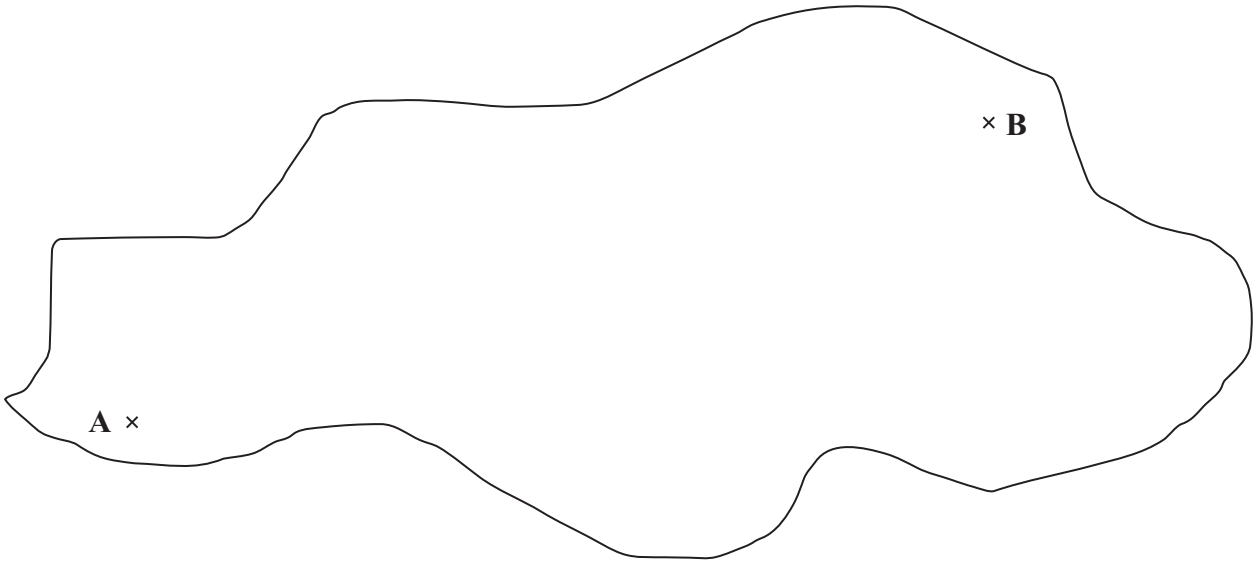
242 David is going to buy a cooker.
The cooker has a price of £320
David pays a deposit of 15% of the price of the cooker.

How much money does David pay as a deposit?

£.....

(Total for Question 242 is 2 marks)

243 The map shows two airports, **A** and **B**.



Scale: 1 cm to 100 km

A plane flies directly from **A** to **B**.
The average speed of the plane is 300 km/h.

How long does the plane take to fly from **A** to **B**?
You must show all your working.

..... hours

(Total for Question 243 is 3 marks)

244 Suha has a full 600 m*l* bottle of wallpaper remover.
She is going to mix some of the wallpaper remover with water.

Here is the information on the label of the bottle.

Wallpaper remover
600 m*l*

Mix $\frac{1}{4}$ of the wallpaper remover
with 4500 m*l* of water

Suha is going to use 750 m*l* of water.

How many millilitres of wallpaper remover should Suha use?
You must show your working.

..... m*l*

(Total for Question 244 is 4 marks)

245 Mr Brown and his 2 children are going to London by train.

An adult ticket costs £24
A child ticket costs £12

Mr Brown has a Family Railcard.

Family Railcard gives
$\frac{1}{3}$ off adult tickets
60% off child tickets

Work out the total cost of the tickets when Mr Brown uses his Family Railcard.

£.....

(Total for Question 245 is 4 marks)

***246** Milk is sold in two sizes of bottle.

A 4 pint bottle of milk costs £1.18
A 6 pint bottle of milk costs £1.74

Which bottle of milk is the best value for money?
You must show all your working.

(Total for Question 246 is 3 marks)

247 On Monday Ravi drives for 4 hours.
His average speed is 30 mph.

(a) How far does Ravi drive on Monday?

..... miles
(2)

On Tuesday Ravi drives 200 km.

5 miles = 8 kilometres.

*(b) On which day did Ravi drive further?

(3)

(Total for Question 247 is 5 marks)

---

248 Jack is 1.78 m tall.
Amy is 5 cm taller than Jack.

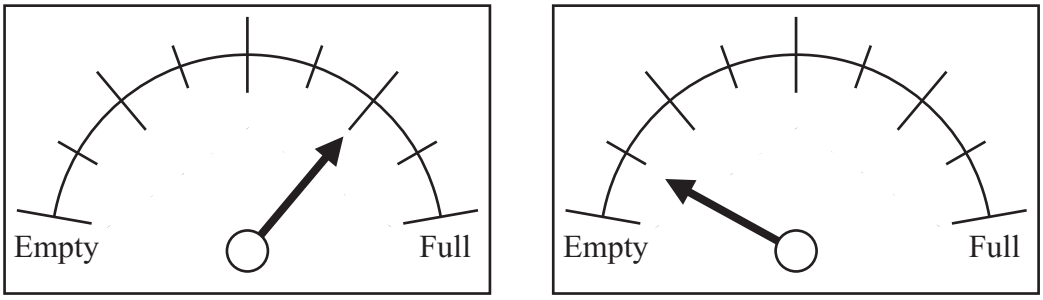
How tall is Amy?

.....

(Total for Question 248 is 2 marks)

---

249 The diagram shows a car fuel gauge at the start of a journey and at the end of the journey.



Start **End**

There are 80 litres of fuel in the fuel tank when it is full.

(a) Work out how many litres of fuel the car used on this journey.

..... litres

(3)

On a different journey, the car went 180 kilometres.
The car went 15 kilometres for each litre of fuel used.

(b) How many litres of fuel did the car use?

..... litres

(2)

(Total for Question 249 is 5 marks)

250 One kilogram of cheese costs £5.60
Jane buys 200 g of cheese.

Work out how much Jane pays.

£.....

(Total for Question 250 is 3 marks)

251 Mr Mason asks 240 Year 11 students what they want to do next year.

15% of the students want to go to college.

$\frac{3}{4}$ of the students want to stay at school.

The rest of the students do not know.

Work out the number of students who do not know.

.....

(Total for Question 251 is 4 marks)

252 (a) Write 8 45 pm as a 24-hour clock time.

.....

(1)

Seeta did a puzzle in 3 minutes 45 seconds.
Ninal did the same puzzle in 7 minutes 28 seconds.

Seeta says,

'I did the puzzle in less than half the time Ninal did the puzzle.'

*(b) Is Seeta right?
You must show all your working.

(3)

(Total for Question 252 is 4 marks)

253 You can use this rule to work out the total cost of hiring a car.

Total cost = £4 per hour plus £12

Arun hires a car for 5 hours.

(a) Work out the total cost.

£ .....

(2)

Raj hires a car.
The total cost is £40

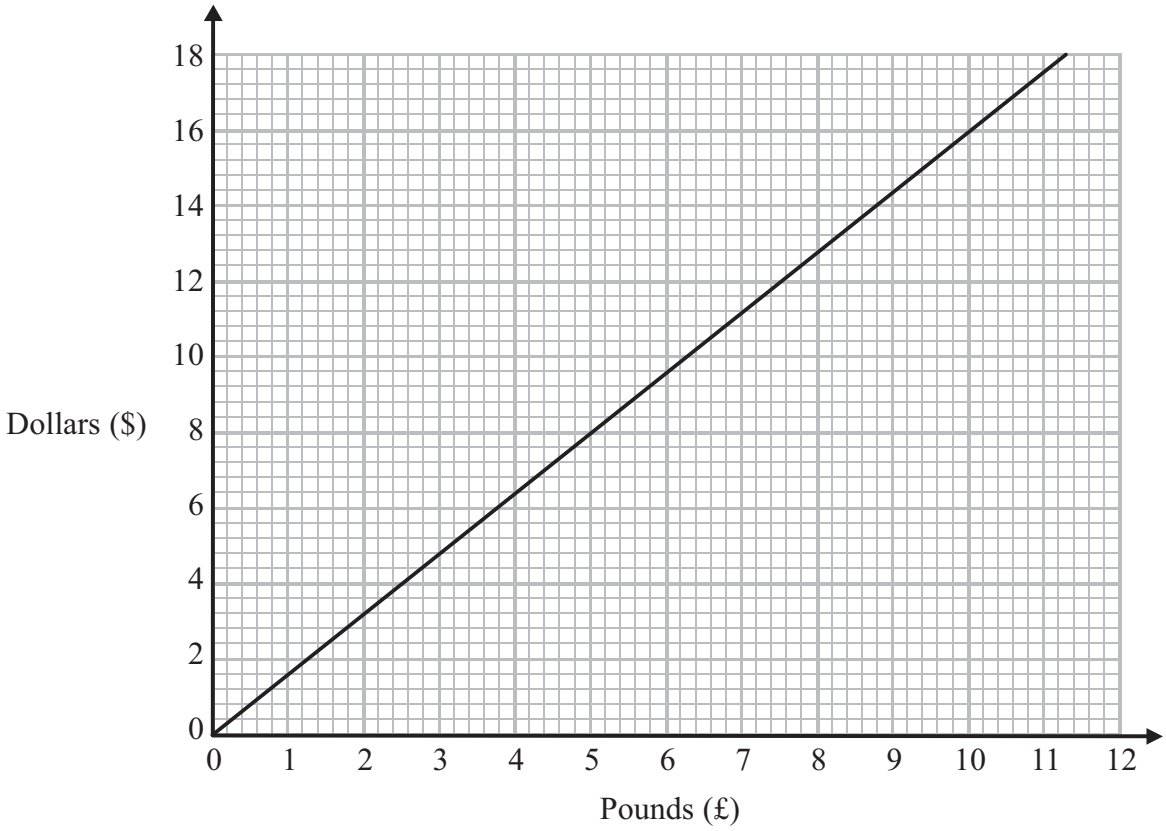
(b) Work out how many hours Raj hires the car for.

..... hours

(3)

(Total for Question 253 is 5 marks)

254 You can use this conversion graph to change between pounds (£) and dollars ($).



(a) Use the conversion graph to change £5 to dollars.

$ .....

(1)

Ella has $200 and £800
Her hotel bill is $600

Ella pays the bill with the $200 and some of the pounds.

(b) Use the conversion graph to work out how many pounds she has left.

£ .....

(4)

(Total for Question 254 is 5 marks)

255 Here is a scale drawing of a rectangular garden *ABCD*.

Scale: 1 cm represents 1 metre.

Jane wants to plant a tree in the garden

at least 5 m from point *C*,
nearer to *AB* than to *AD*
and less than 3 m from *DC*.

On the diagram, shade the region where Jane can plant the tree.

(Total for Question 255 is 4 marks)

256 Greg sells car insurance and home insurance.

The table shows the cost of these insurances.

Insurance	car insurance	home insurance
Cost	£200	£350

Each month Greg earns

£530 basic pay
5% of the cost of all the car insurance he sells
and 10% of the cost of all the home insurance he sells

In May Greg sold

6 car insurances
and 4 home insurances

Work out the total amount of money Greg earned in May.

£ .....

(Total for Question 256 is 5 marks)

257 5 schools sent some students to a conference.

One of the schools sent both boys and girls.
This school sent 16 boys.
The ratio of the number of boys it sent to the number of girls it sent was 1 : 2

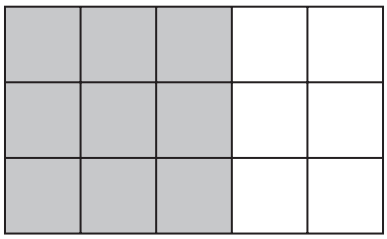
The other 4 schools sent only girls.
Each of the 5 schools sent the same number of students.

Work out the total number of students sent to the conference by these 5 schools.

.....

(Total for Question 257 is 4 marks)

258 (a) Write down the fraction of this shape that is shaded.
Give your fraction in its simplest form.



.....

(2)

(b) Write $\frac{9}{10}$ as a decimal.

.....

(1)

(c) Tania says that 75% is greater than 0.8

Is she right?
Explain your answer.

.....

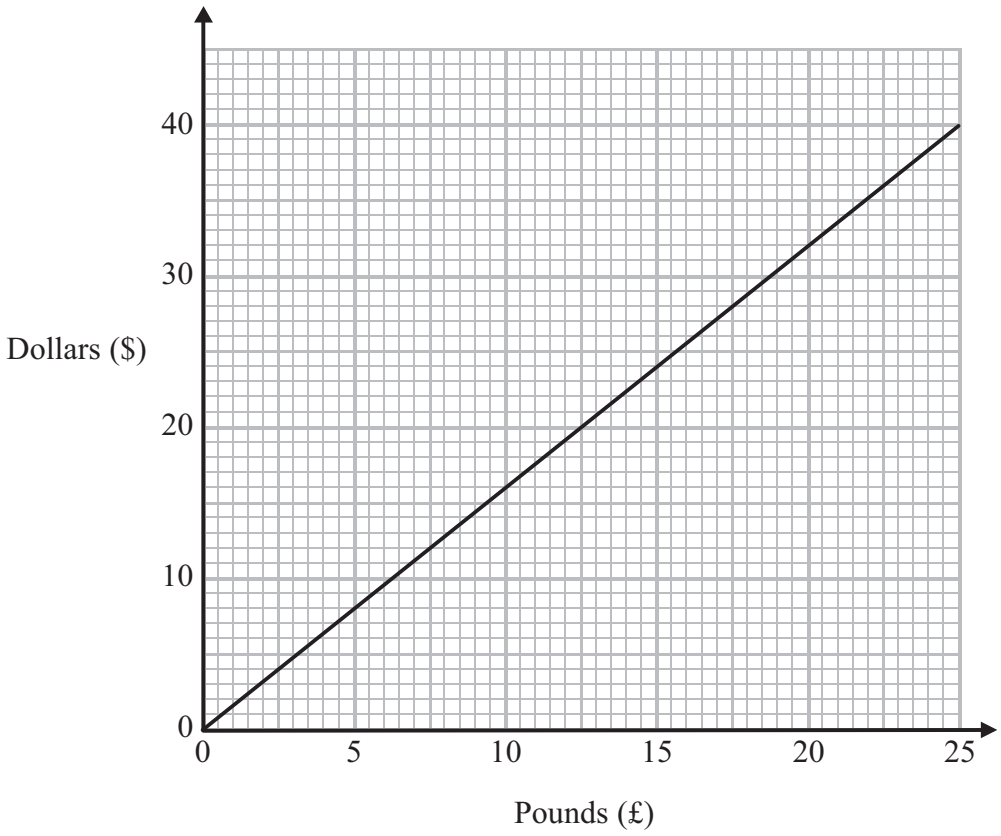
.....

.....

(1)

(Total for Question 258 is 4 marks)

259 You can use this graph to change between pounds (£) and dollars ($).



(a) Change £20 into dollars ($).

$.....

(1)

In London, Sano headphones cost £60
In New York, Sano headphones cost $100

Sano headphones cost more in New York than in London.

(b) How much more?

.....

(3)

(Total for Question 259 is 4 marks)

260 Sapir buys 60 bags.
She pays £3 for each bag.

Sapir sells $\frac{1}{2}$ of the bags for £5 each.

She sells $\frac{1}{3}$ of the bags for £4 each.

Sapir wants to make a total profit of £75

How much should she sell each of the remaining bags for?

£.....

(Total for Question 260 is 4 marks)

261 Felicity asked 100 students how they came to school one day.
Each student walked or came by bicycle or came by car.

49 of the 100 students are girls.
10 of the girls came by car.
16 boys walked.
21 of the 41 students who came by bicycle are boys.

Work out the total number of students who walked to school.

.....

(Total for Question 261 is 4 marks)

262 Here are the ingredients needed to make 16 gingerbread men.

Ingredients
to make **16** gingerbread men

180 g flour
40 g ginger
110 g butter
30 g sugar

Hamish wants to make 24 gingerbread men.

Work out how much of each of the ingredients he needs.

.....g flour

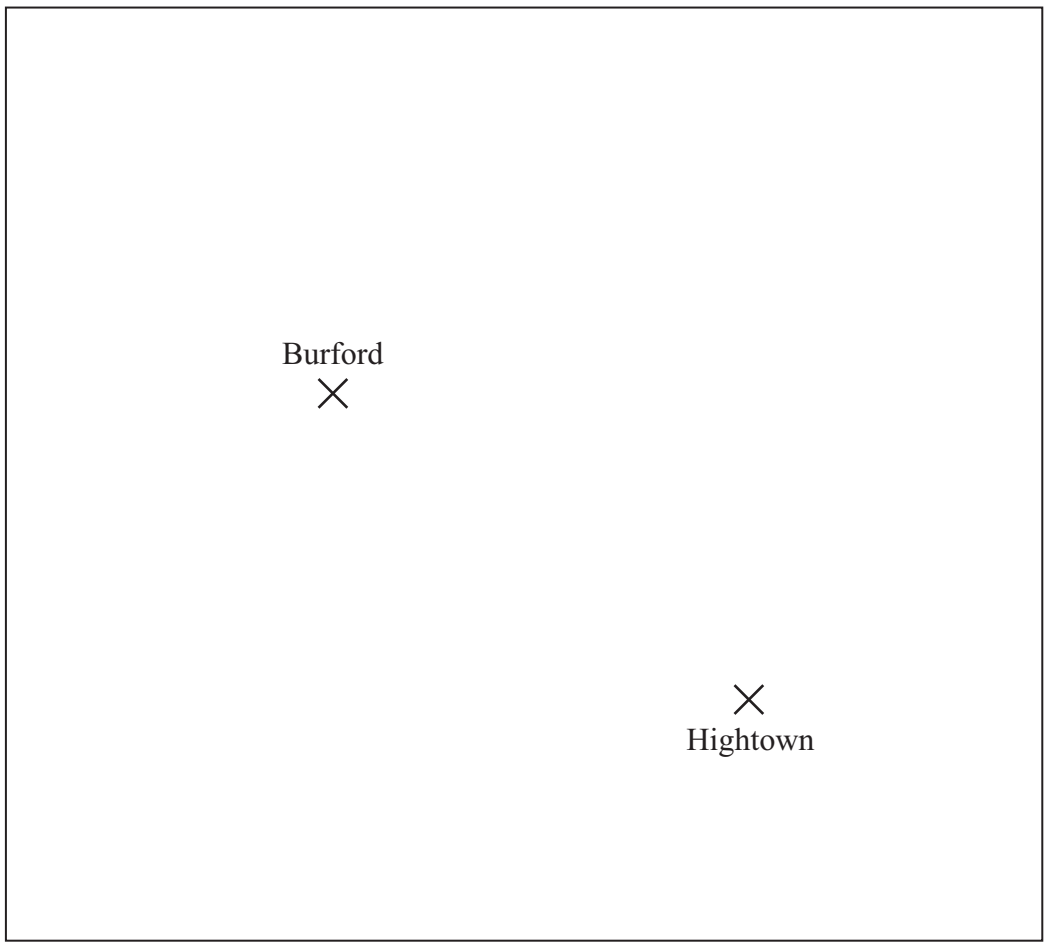
.....g ginger

.....g butter

.....g sugar

(Total for Question 262 is 3 marks)

263 Here is a map.
The map shows two towns, Burford and Hightown.



Scale: 1 cm represents 10 km

A company is going to build a warehouse.

The warehouse will be less than 30 km from Burford **and** less than 50 km from Hightown.

Shade the region on the map where the company can build the warehouse.

(Total for Question 263 is 3 marks)

***264** Talil is going to make some concrete mix.
He needs to mix cement, sand and gravel in the ratio 1 : 3 : 5 by weight.

Talil wants to make 180 kg of concrete mix.

Talil has

15 kg of cement
85 kg of sand
100 kg of gravel

Does Talil have enough cement, sand and gravel to make the concrete mix?

(Total for Question 264 is 4 marks)

***265** Debbie, Salma and Wendy did a Maths test.
The total for the test was 40 marks.

Debbie got 16 out of 40
Salma got 35% of the 40 marks.

Wendy got $\frac{3}{8}$ of the 40 marks.

Who got the highest mark?
You must show all your working.

(Total for Question 265 is 4 marks)

266 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 m*l* of milk

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

(a) How many shortcakes does Liz make?

.....

(2)

Robert has
500 g of sugar
1000 g of butter
1000 g of flour
500 m*l* of milk

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

.....

(2)

(Total for Question 266 is 4 marks)

267 Chris owns a clothes shop.
He bought 50 shirts at £12 for each shirt.
He chose the selling price of each shirt so that he would make a profit of 30% on each shirt.
He sold 20 shirts at this price.

Chris then reduced the selling price of each shirt by 15%.
He then sold the remaining shirts at this reduced selling price.

Has Chris made a profit or loss?
You must explain your answer clearly.

(Total for Question 267 is 4 marks)

268 Simon is a salesman.
He gets paid expenses of 40p for every mile that he drives during work.
He also gets £12 expenses as a meal allowance for any day that he drives during work.
The table gives information about the number of miles Simon drove on 5 days in one week.

Day	Number of miles
Monday	48
Tuesday	37
Wednesday	0
Thursday	78
Friday	21

(a) Work out Simon's total expenses.

(4)

£.....

Sasha works for the same company.
She gets paid expenses of 40p for each mile she drives during work.

Last year she worked for 48 weeks.

Her total **expenses** or driving for the year were £2116.80

(b) Work out an estimate for the average number of miles Sasha drove during work each week last year.

(3)

.....

(Total for Question 268 is 7 marks)

***269** Emma says

"Since 3 is half way between 2 and 4 then $\frac{1}{3}$ will be half way between $\frac{1}{2}$ and $\frac{1}{4}$"

Emma is wrong.

Show that $\frac{1}{3}$ is not half way between $\frac{1}{2}$ and $\frac{1}{4}$

Show your working here.

(Total for Question 269 is 7 marks)

***270** A lift takes people to the top of a tower.
The lift stops only at the bottom of the tower and at the top of the tower.

The table below gives information about the times taken by the lift.

	Time taken
Waits at bottom of tower	1 minute
Goes up to top of tower	45 seconds
Waits at top of tower	1 minute
Goes down to bottom of tower	45 seconds

The lift can carry a maximum of 10 people.

Liz says that in 1 hour the lift can carry more than 200 people to the top of the tower.

Is Liz correct?
You must show how you get your answer.

(Total for Question 270 is 4 marks)

***271** This sign is on a bridge.

Low bridge
Maximum height of vehicle
4.4 metres

The height of a bus is 14 feet 4 inches.

12 inches = 1 foot
1 inch = 2.54 cm

Can the bus go under the bridge?
You must show how you get your answer.

(Total for Question 271 is 3 marks)

272 One kilogram of cheese costs £9.68
Chris buys 650 g of this cheese.

Work out how much Chris pays.

£.....

(Total for Question 272 is 3 marks)

273 30% of the people at a concert are female.
1295 of the people at the concert are male.

Work out the number of people at the concert who are female.

.....

(Total for Question 273 is 3 marks)

274 Identical pairs of boots are sold in London, in Geneva and in Paris.

These boots have a price of

£115 in London
189 Swiss francs in Geneva
174 euros in Paris

The exchange rates are

£1 = 1.39 Swiss francs
£1 = 1.27 euros

Are the boots the best value for money in London or in Geneva or in Paris?
You must show how you get your answer.

.....

(Total for Question 274 is 3 marks)

275 George wants to watch all 23 games that a football team will play at home next season.

He can buy

a season ticket costing £425

or 23 separate tickets costing £24 each ticket.

What percentage of the total cost of 23 separate tickets does George save by buying a season ticket?

.....%

(Total for Question 275 is 3 marks)

276 Breakfast cereal is put into packets.
1 kg of the cereal is used to fill 20 packets.

(a) Work out the number of **grams** of cereal in each packet.

..... g
(2)

Here are the weights of the ingredients needed to make 100 kg of the cereal.

oats	28 kg
wheat flakes	19 kg
barley flakes	15 kg
fruit	19 kg
nuts	8 kg
seeds	4 kg
other	7 kg

(b) Work out the weight of oats needed to fill 5000 packets of the cereal.
Give your answer in kg.

..... kg
(3)

(Total for Question 276 is 5 marks)

277 This rule is used to work out the cost of hiring a village hall.

Total cost = £8 for each hour plus a fixed charge of £5

Jackie hires the hall for 7 hours.

(a) Work out the total cost.

£.....

(2)

James pays £29 to hire the hall.

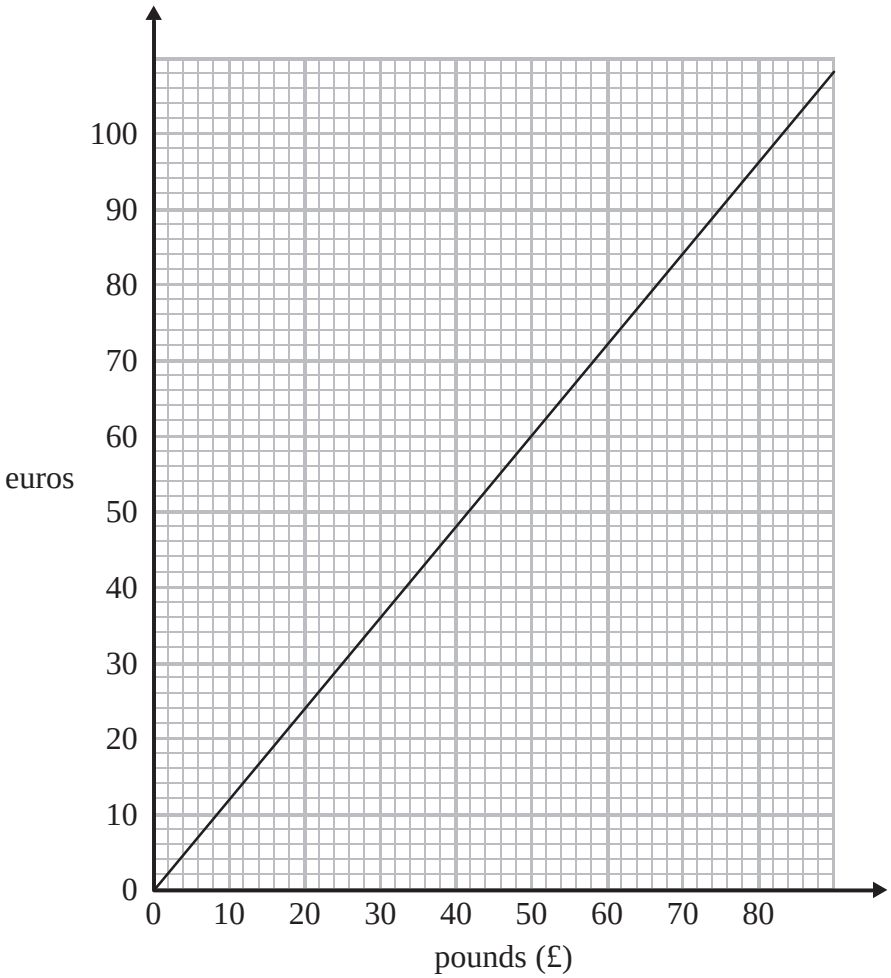
(b) Work out how many hours James hires the hall for.

..... hours

(3)

(Total for Question 277 is 5 marks)

278 You can use this conversion graph to change between pounds (£) and euros.



(a) Change £55 into euros.

..... euros

(1)

(b) Change 150 euros into pounds (£).

£.....

(2)

(Total for Question 278 is 3 marks)

279 David drives to the supermarket on his way home from work.

The table shows some information about his journey.

	Time
Leaves work	1730
Gets to supermarket	1745
Leaves supermarket	1810

(a) How many minutes is David at the supermarket?

..... minutes

(1)

David leaves the supermarket at 1810
He drives 20 miles to his home.
The speed limit for the journey is 30 mph.

David drives within the speed limit.

*(b) Can David get home before 1900?
Give reasons for your answer.

(3)

(Total for Question 279 is 4 marks)

280 There are 165 counters in a bag.

Each counter is either black or white.
There are twice as many black counters as white counters in the bag.

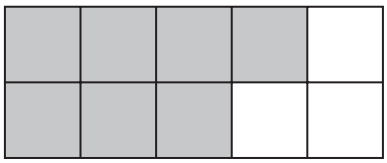
Martine takes 40% of the black counters from the bag.

Work out the ratio of the number of black counters to the number of white counters now in the bag.
Give your ratio in its simplest form.

.....

(Total for Question 280 is 4 marks)

281



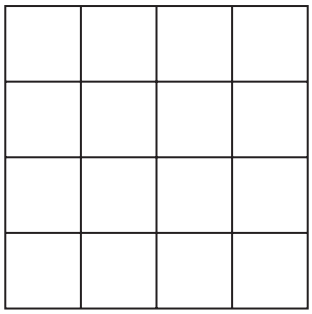
(a) What fraction of the shape above is shaded?

.....

(1)

(b) Shade $\frac{3}{4}$ of this shape.

(1)



Jack has 80 marbles.

He gives $\frac{1}{5}$ of the marbles to his friends.

(c) Work out how many marbles Jack now has.

.....

(3)

(Total for Question 281 is 5 marks)

282 Megan buys a frozen turkey.
She is going to defrost the turkey using these instructions.

Defrosting instructions

Allow 2 hours for each 450 g

The turkey weighs 5.4 kg.

(a) Work out how many hours it will take to defrost the turkey.

..... hours
(3)

Megan uses these instructions to cook the turkey.

1. Cook for 20 minutes per kg.
2. Cook for another 90 minutes.
3. Take out of oven.
4. Leave for 30 minutes.

The turkey will then be ready to eat.

The turkey weighs 5.4 kg.

Megan says,

"I will start to cook the turkey at 2 30 pm.
It will be ready to eat at 6 pm."

*(b) Is Megan correct?
You must show how you get your answer.

(4)

(Total for Question 282 is 7 marks)

283 The body mass index, B, for a person of mass m kg and height h metres is given by the formula

$$B = \frac{m}{h^2}$$

Usman has a mass of 50 kg.
He has a height of 1.57 m.

(a) Work out Usman's body mass index.
Give your answer correct to one decimal place.

.....

(2)

Tom's height is 1.80 m.
He wants his body mass index to be 21

(b) Work out the mass that will give Tom a body mass index of 21

..... kg

(2)

Tom is a ski jumper.

The maximum length of skis he can use is 145% of his height.
Tom's height is 1.80 m.

(c) Work out the maximum length of skis Tom can use.

..... m

(3)

(Total for Question 283 is 3 marks)

284 Colin works on 5 days each week.
Each day he drives from his home to work and from work to his home.

Colin pays £3.50 each day to use the car park at work.

The distance from Colin's home to work is 18 miles.
Colin's car uses one gallon of petrol every 45.2 miles.

1 litre of petrol costs 136.9p
1 gallon = 4.546 litres

Work out the total cost for Colin to use his car for work each week.
You must show all your working.

£ .....

(Total for Question 284 is 5 marks)

285

(a) Write down the fraction of this shape that is shaded.

.....

(1)

(b) Shade 40% of this shape.

(1)

(c) Work out 0.75 of 200

.....

(2)

Michael says $\frac{5}{7} - \frac{3}{5} = \frac{2}{2}$

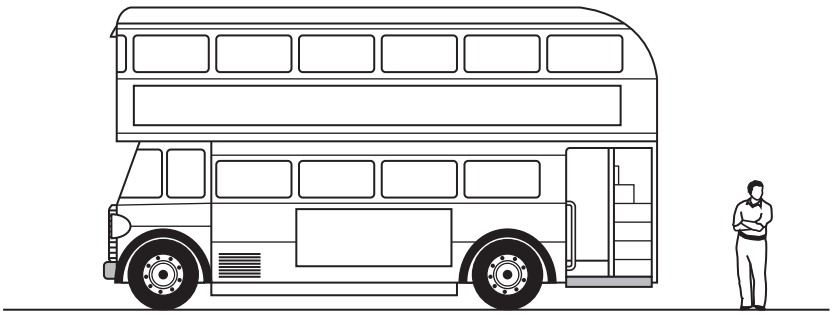
Michael is wrong.

*(d) Explain why.

(2)

(Total for Question 285 is 6 marks)

286



The picture shows a bus driver standing next to his bus.
The bus driver and the bus are drawn to the same scale.

Work out an estimate for the height of the bus.
You must clearly show how you get your answer.

.....

(Total for Question 286 is 3 marks)

287 There are only red counters and blue counters in a bag.
The ratio of the number of red counters to the number of blue counters is 4 : 6

(a) Write this ratio in its simplest form.

.....

(1)

A counter is to be taken at random from the bag.

(b) Write down the probability that the counter will be blue.

.....

(2)

(Total for Question 287 is 3 marks)

288 Samantha has to go to a meeting.

The meeting should start at 2 pm.
Samantha gets to the meeting at 1 45 pm.

(a) How long does Samantha have to wait until 2 pm?

.....

(2)

The 2 pm meeting starts 10 minutes late.
The meeting lasts 55 minutes.

(b) Work out the time the meeting finishes.

.....

(2)

Samantha then has to go to a 4 pm meeting.
It will take Samantha 75 minutes to get to this meeting.

*(c) Can Samantha get to this meeting by 4 pm?
You must show how you get your answer.

(2)

(Total for Question 288 is 6 marks)

289 (a) Write $\frac{1}{8}$ as a percentage.

.....%

(1)

(b) Work out $\frac{5}{6}$ of 600

.....

(2)

(Total for Question 289 is 3 marks)

***290** Andy cycles to keep fit.
He wants to cycle a total of 70 km each week.

Andy went on four cycle rides last week.

Here are the distances he cycled.

18.2 km 14 km 250 m $20\frac{1}{2}$ km 12 050 m

Did Andy cycle a total of 70 km last week?
You must show how you got your answer.

(Total for Question 290 is 4 marks)

---

291 Jay is paid £2000 each month.

He saves 6% of the £2000 each month.

How many months will it take Jay to save £480?

..... months

(Total for Question 291 is 3 marks)

292 Here is a scale drawing of an office.
The scale is 1 cm to 2 metres.

A photocopier is going to be put in the office.
The photocopier has to be closer to *B* than it is to *A*.
The photocopier also has to be less than 8 metres from *C*.

Show, by shading, the region where the photocopier can be put.

(Total for Question 292 is 3 marks)

293 There are 240 counters in a bag.
The counters are green or yellow or blue.

$\frac{3}{5}$ of the counters are green.

$\frac{1}{4}$ of the counters are yellow.

Work out the number of blue counters in the bag.

.....

(Total for Question 293 is 4 marks)

294 Here are the ingredients needed to make 10 pancakes.

Pancakes	
Ingredients to make **10** pancakes	
300 m*l*	of milk
120 g	of flour
2	eggs

Matthew makes 30 pancakes.

(a) Work out how much flour he uses.

.....g

(2)

Tara makes some pancakes.
She uses 750 m*l* of milk.

(b) Work out how many pancakes she makes.

.....

(2)

(Total for Question 294 is 4 marks)

295 Margaret is on holiday in France.

She buys an English newspaper.
The cost of the newspaper is 5 euros.
In England, the cost of the same newspaper is £2.50

The exchange rate is £1 = 1.16 euros.

Work out the difference between the cost of the newspaper in France and the cost of the newspaper in England.

.....

(Total for Question 295 is 3 marks)

***296** The table gives some information about student attendance at a school on Friday.

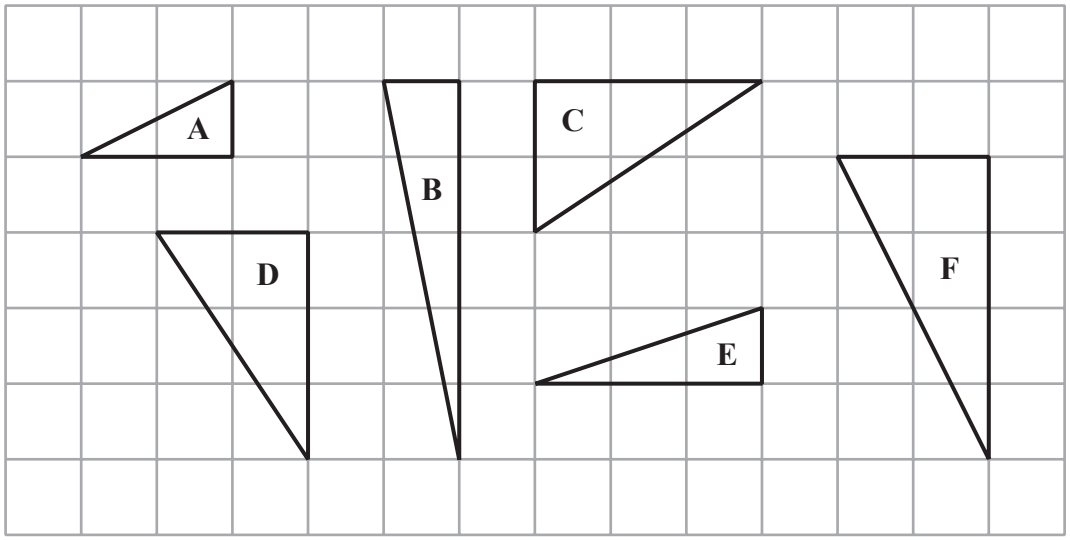
	Number of students		
Year	**Present**	**Absent**	**Total**
Year 7	192	16	208
Year 8	219	22	241
Year 9	234	28	262
Year 10	233	28	261
Year 11	214	24	238

The school has a target of 94% of students being present each day.

Did the school meet its target on Friday?

(Total for Question 296 is 3 marks)

297 Here are some triangles drawn on a grid.



Two of the triangles are congruent.

(a) Write down the letters of these two triangles.

..... and .....

(1)

One of the triangles is an enlargement of triangle **A**.

(b) (i) Write down the letter of this triangle.

.....

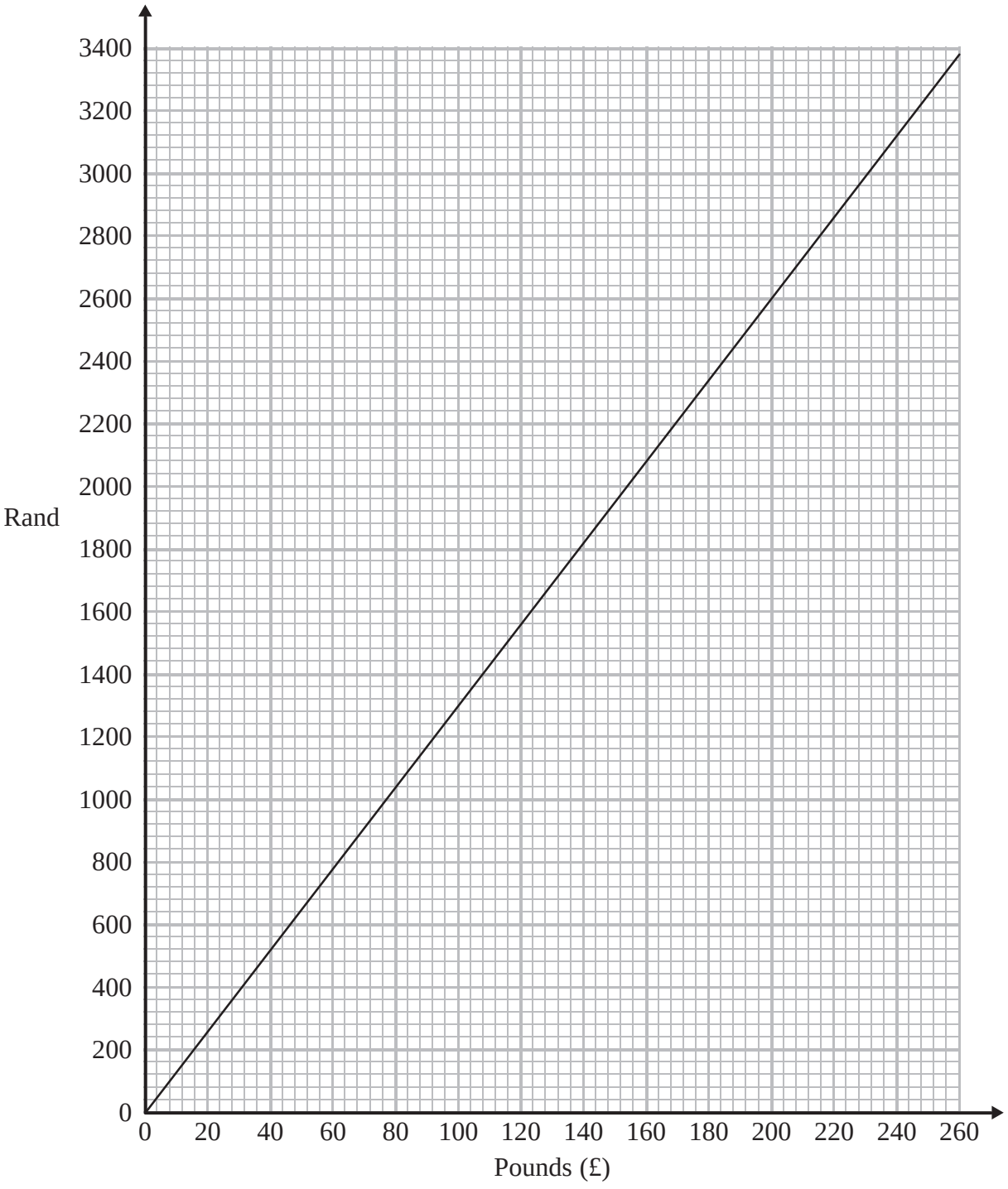
(ii) Write down the scale factor of the enlargement.

.....

(2)

(Total for Question 297 is 3 marks)

298 Here is a conversion graph to change between UK pounds (£) and South African rand.



Jo changes £200 into rand.

(a) How many rand does she get?

..... rand

(1)

Simon has £100 and 3700 rand.
He goes to a shop where he can spend both pounds and rand.

He wants to buy

a computer costing £360

or

a watch costing £400

or

a camera costing £375

*(b) Which of these items can Simon afford to buy?
You must show clearly how you get your answer.

(3)

(Total for Question 298 is 4 marks)

299 A factory makes 1500 cans per minute.

The factory makes cans for 8 hours each day.

Each can is filled with 330 m*l* of cola.

How much cola is needed to fill all the cans that are made each day?
Give your answer in litres.

..... litres

(Total for Question 299 is 4 marks)

***300** Here are two fractions.

$$\frac{2}{3} \qquad \frac{7}{8}$$

Which of these fractions has a value closer to $\frac{3}{4}$?

You must show clearly how you get your answer.

(Total for Question 300 is 3 marks)

***301** Miss Phillips needs to decide when to have the school sports day.

The table shows the number of students who will be at the sports day on each of 4 days.
It also shows the number of teachers who can help on each of the 4 days.

	Tuesday	**Wednesday**	**Thursday**	**Friday**
Number of students	179	162	170	143
Number of teachers	15	13	14	12

For every 12 students at the sports day there must be at least 1 teacher to help.

On which of these days will there be enough teachers to help at the sports day?
You must show all your working.

(Total for Question 301 is 3 marks)

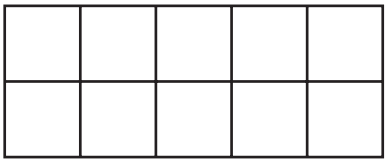
302

(a) Write down the fraction of this shape that is shaded.

.....

(1)

(b) Shade 30% of this shape.



(1)

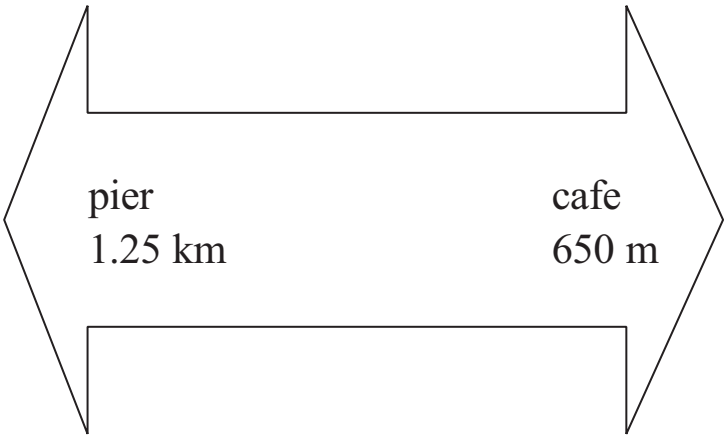
(c) Work out $\frac{2}{3}$ of 120 kg.

..... kg

(2)

(Total for Question 302 is 4 marks)

303 John is walking along a path.
He sees this sign.

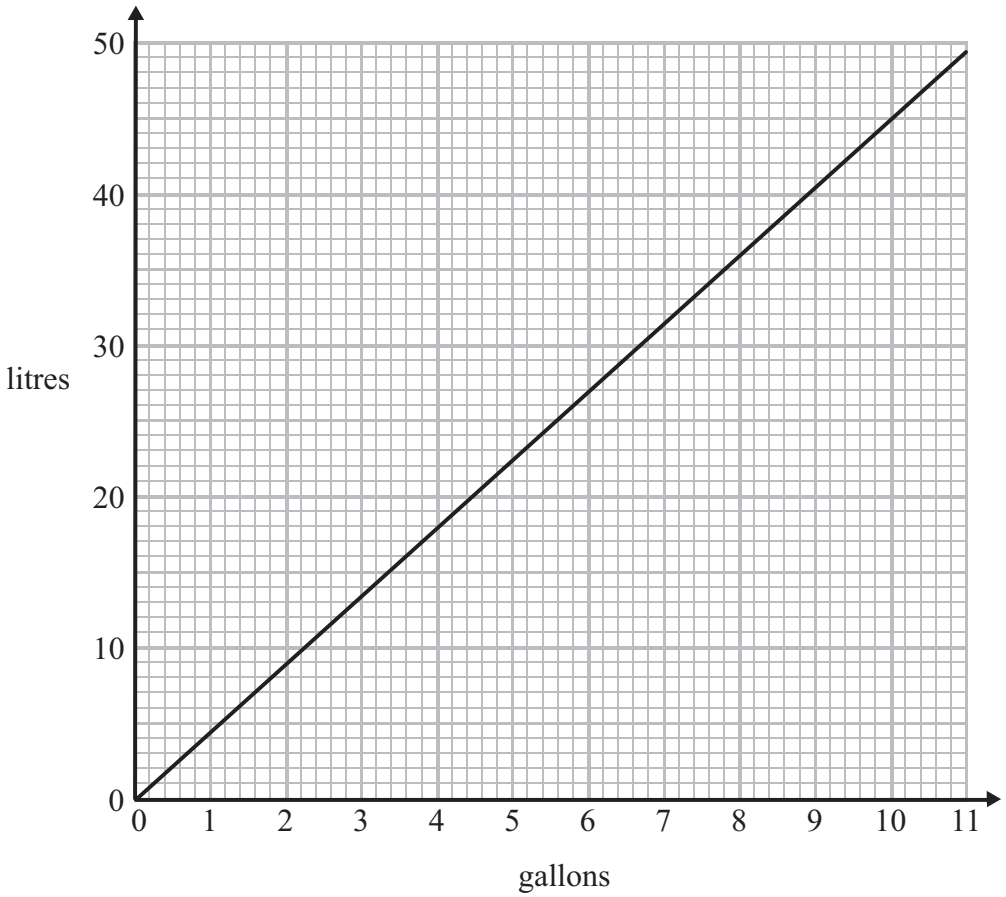


How far is it from the pier to the cafe along the path?

.....

(Total for Question 303 is 3 marks)

304 You can use this graph to change between gallons and litres.



There are 80 litres of petrol in the petrol tank of car A.
There are 16 gallons of petrol in the petrol tank of car B.

Which car has the most petrol in its petrol tank?
You must show all your working.

.....

(Total for Question 304 is 3 marks)

305 Linda is buying wool to knit a baby's blanket.
She needs 1800 yards of wool.

Linda chooses some balls of wool.
There are 245 metres of wool in each ball of wool.

Linda knows that

1 yard is 36 inches
1 inch is 2.54 centimetres

How many balls of wool does Linda need to buy?
You must show all your working.

.....

(Total for Question 305 is 4 marks)

306 The same type of computer is sold in two shops.

Computer World
Beta computer
Normal price : £359
15% off normal price

Logic
Beta computer
Pay £110 now and pay 12 instalments of £16.80 per month

What is the difference in the cost of a Beta computer in Computer World and the cost of a Beta computer in Logic?

You must show all your working.

£ .....

(Total for Question 306 is 5 marks)

***307** Axel and Lethna are driving along a motorway.

They see a road sign.
The road sign shows the distance to Junction 8
It also shows the average time drivers will take to get to Junction 8

To Junction 8
30 miles 26 minutes

The speed limit on the motorway is 70 mph.

Lethna says,

'We will have to drive faster than the speed limit to go 30 miles in 26 minutes.'

Is Lethna right?
You must show how you got your answer.

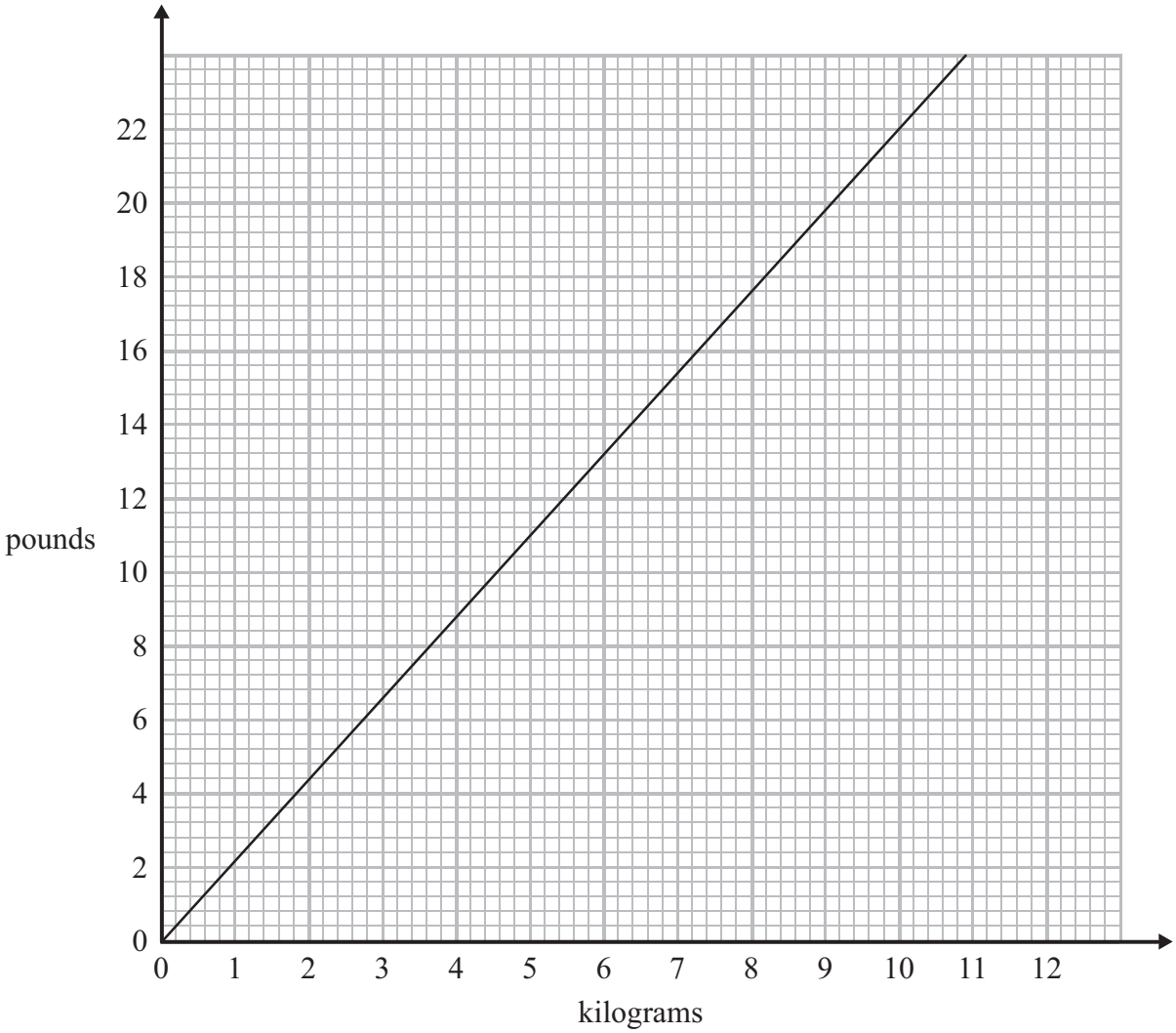
(Total for Question 307 is 3 marks)

308 Work out the difference in value between $\frac{1}{4}$ and 30%.

.....

(Total for Question 308 is 2 marks)

309 You can use this conversion graph to change between kilograms and pounds.



Daniel's weight is 9 stone 6 pounds.
1 stone = 14 pounds.

What is Daniel's weight in kilograms?

..... kilograms

(Total for Question 309 is 3 marks)

310 Robert and his family are going on holiday to France.

A bank gives Robert this chart to help him to change between pounds (£) and euros (€).

pounds (£)		euros (€)
1	=	1.2
2	=	2.4
5	=	6.0
10	=	12.0
20	=	24.0
50	=	60.0
100	=	120.0

Robert changes £600 into euros (€).

(a) How many euros should Robert get?

€.....

(2)

In France, a laptop costs €540
In England, the same laptop costs £460

(b) Work out the difference between the cost of the laptop in France and the cost of the laptop in England.
You must show clearly how you got your answer.

.....

(3)

(Total for Question 310 is 5 marks)

311 A picture is made from tiles.

The diagram shows the picture in the shape of a rectangle, 120 cm by 100 cm.
It also shows a tile in the shape of a rectangle, 15 cm by 20 cm.

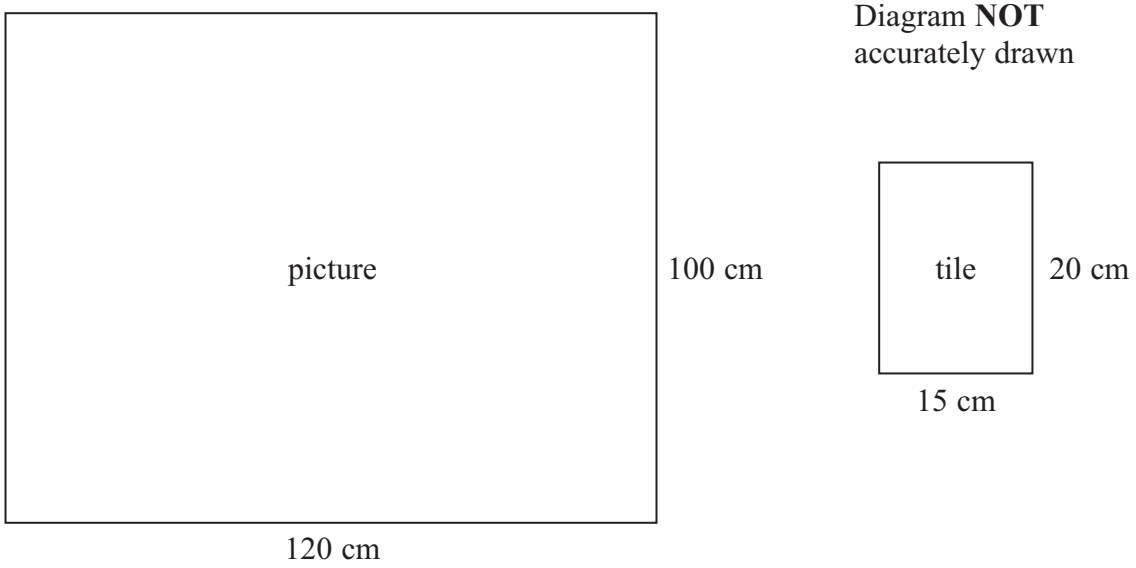


Diagram **NOT** accurately drawn

(a) Work out the number of these tiles needed to make the picture.

.....

(3)

The total cost of the tiles is £52 plus VAT.
The rate of VAT is 20%.

(b) Work out 20% of £52

£.....

(2)

(Total for Question 311 is 5 marks)

312 The table shows the prices of drinks at Ed's Cafe.

Ed's Cafe			
	Small	**Regular**	**Large**
Black coffee	£1.40	£1.80	£2.20
Cappuccino	£1.60	£2.10	£2.60
Latte	£1.60	£2.10	£2.60
Tea	£1.20	£1.50	£1.80
Cola	£1.50	£2.00	£2.40

Helen buys

2 small black coffees
1 regular cappuccino
1 large cola

Helen pays with a £10 note.

(a) Work out how much change Helen should get.

£.....

(3)

Ed reduces all the prices by 15%.

(b) Work out the reduced price of a large latte.

£.....

(3)

(Total for Question 312 is 6 marks)

***313** Here is a list of ingredients for making 18 mince pies.

Ingredients for 18 mince pies
225 g of butter
350 g of flour
100 g of sugar
280 g of mincemeat
1 egg

Elaine wants to make 45 mince pies.

Elaine has

1 kg of butter
1 kg of flour
500 g of sugar
600 g of mincemeat
6 eggs

Does Elaine have enough of each ingredient to make 45 mince pies?
You must show clearly how you got your answer.

(Total for Question 313 is 4 marks)

314 Colin, Dave and Emma share some money.

Colin gets $\frac{3}{10}$ of the money.

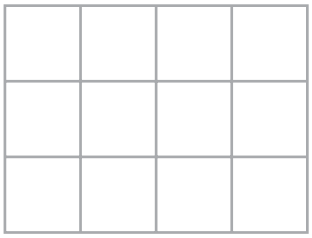
Emma and Dave share the rest of the money in the ratio 3 : 2

What is Dave's share of the money?

.....

(Total for Question 314 is 4 marks)

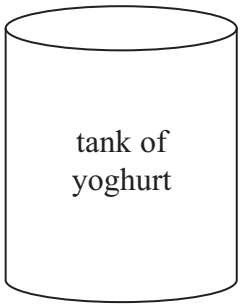
315 Here is a shape.



Shade $\frac{3}{4}$ of this shape.

(Total for Question 315 is 1 mark)

***316** A factory makes yoghurt in a tank.



Here are the weights of the ingredients needed to make a tank full of yoghurt.

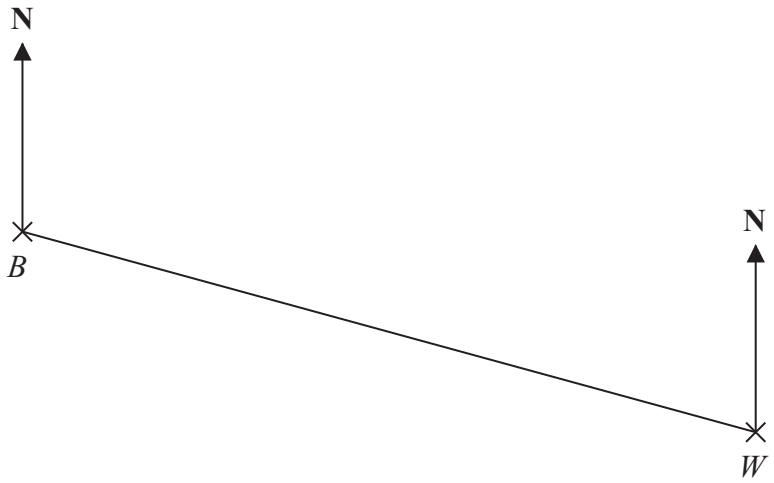
Milk	80 kg
Skimmed milk powder	2 kg
Sugar	3 kg
Stabiliser	1 kg
Fruit	10 kg

The yoghurt from the tank is put into pots.
Each 1 kg of the yoghurt is used to fill 8 pots.

Is there enough yoghurt in the tank to fill 750 pots?
You must show all your working.

(Total for Question 316 is 4 marks)

317 The diagram shows the positions of two villages, Beckhampton (B) and West Kennett (W).



Scale: 4 cm represents 1 km.

(a) Work out the real distance, in km, of Beckhampton from West Kennett.

..... km

(2)

The village, Avebury (A), is on a bearing of 038° from Beckhampton.

On the diagram, A is 6 cm from B.

(b) On the diagram, mark A with a cross (×).
Label the cross A.

(2)

(Total for Question 317 is 4 marks)

318 Peter goes for a walk.
He walks 15 miles in 6 hours.

(a) Work out Peter's average speed.
Give your answer in miles per hour.

..... mph
(2)

5 miles = 8 km.
Sunita says that Peter walked more than 20 km.

*(b) Is Sunita right?
You must show all your working.

(2)

(Total for Question 318 is 4 marks)

319 Mr Watkins needs to buy some oil for his central heating.

Mr Watkins can put up to 1500 litres of oil in his oil tank.
There are already 850 litres of oil in the tank.
Mr Watkins is going to fill the tank with oil.

The price of oil is 67.2p per litre.
Mr Watkins gets 5% off the price of the oil.

How much does Mr Watkins pay for the oil he needs to buy?

£.....

(Total for Question 319 is 5 marks)

***320** Jim's pay is £180 each week.

Jim asks his boss for an increase of £20 a week.

Jim's boss offers him a 10% increase.

Is the offer from Jim's boss more than Jim asked for?

You must show your working.

(Total for Question 320 is 3 marks)

*321 Ashley wants to buy some tins of paint.

He finds out the costs of paint at two shops.

Paint R Us

Normal price £2.19 a tin

Special Offer

Buy 2 tins at the normal price and get the 3rd tin free

Deco Mart

Normal price £1.80 a tin

Special Offer

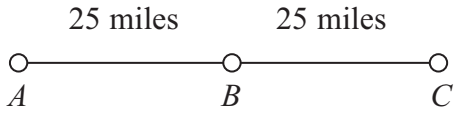
10% off the normal price

Ashley needs 9 tins of paint.
Ashley wants to get all the tins of paint from the same shop.
He wants to pay the cheapest possible total price.

Which of the two shops should Ashley buy the paint from?

(Total for Question 321 is 6 marks)

322



A, B and C are 3 service stations on a motorway.

$AB = 25$ miles
$BC = 25$ miles

Aysha drives along the motorway from A to C.

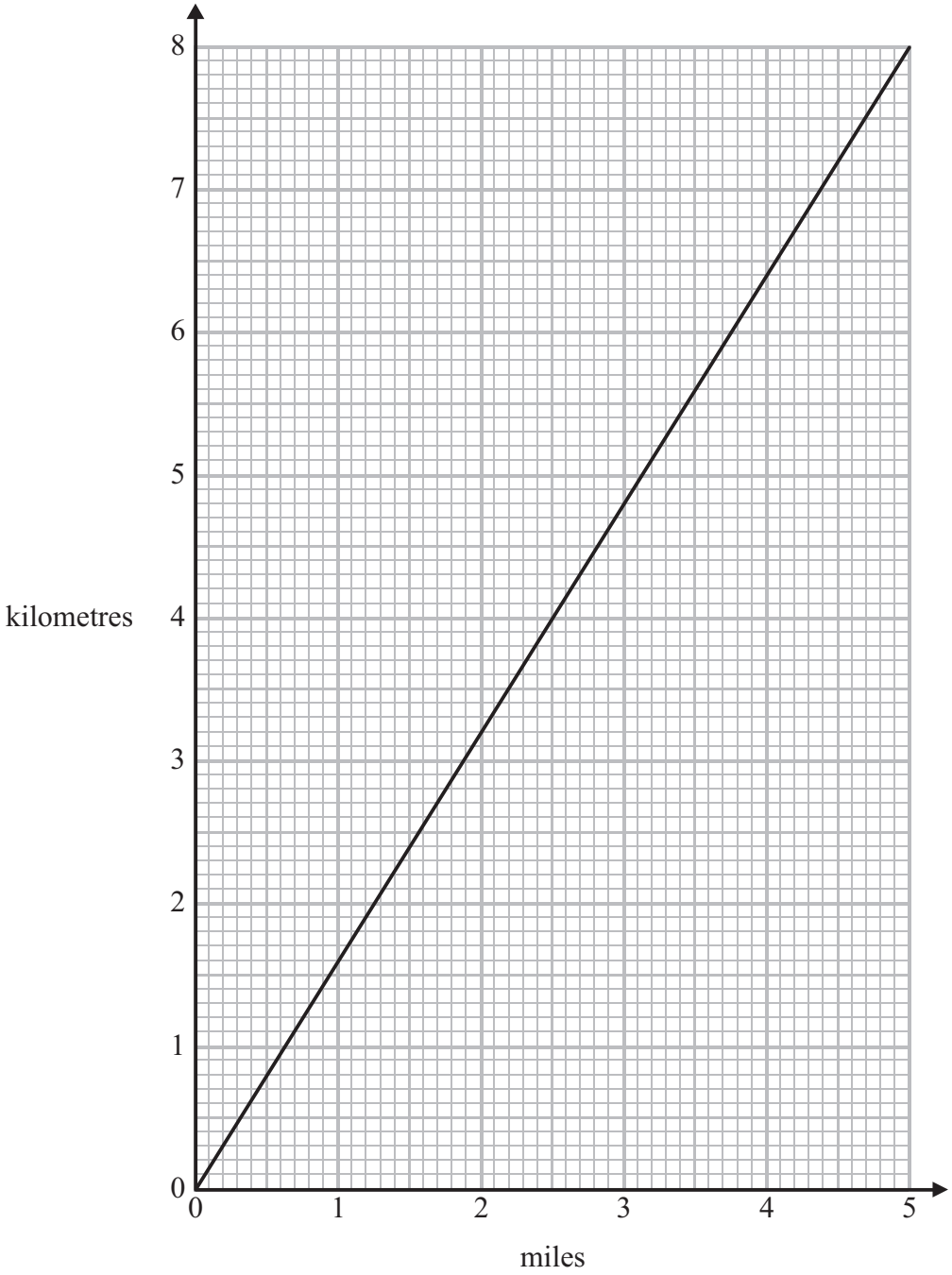
Aysha drives at an average speed of 50 mph from A to B.
She drives at an average speed of 60 mph from B to C.

Work out the difference in the time Aysha takes to drive from A to B and the time Aysha takes to drive from B to C.
Give your answer in minutes.

..... minutes

(Total for Question 322 is 3 marks)

323 You can use the graph to change between miles and kilometres.



(a) Change 3 miles into kilometres.

..... kilometres

(1)

(b) Change 60 kilometres into miles.

..... miles

(2)

(Total for Question 323 is 3 marks)

324 Rani has 250 DVDs.

42% of her DVDs are thrillers.

$\frac{2}{5}$ of her DVDs are comedies.

The rest of her DVDs are science fiction.

How many science fiction DVDs does Rani have?

.....

(Total for Question 324 is 4 marks)

325 Pat and Julie share some money in the ratio 2 : 5
Julie gets £45 more than Pat.

How much money did Pat get?

£.....

(Total for Question 325 is 3 marks)

326 Linda is going on holiday to the Czech Republic.
She needs to change some money into koruna.

She can only change her money into 100 koruna notes.

Linda only wants to change up to £200 into koruna.
She wants as many 100 koruna notes as possible.

The exchange rate is £1 = 25.82 koruna.

(a) How many 100 koruna notes should she get?

.....

(3)

Linda buys a meal in the Czech Republic.
The meal costs 400 koruna.

(b) Work out the cost of the meal in pounds.

£.....

(3)

(Total for Question 326 is 6 marks)

***327** Henry is thinking about having a water meter.

These are the two ways he can pay for the water he uses.

Water Meter

A charge of £28.20 per year

plus

91.22p for every cubic metre of water used

1 cubic metre = 1000 litres

No Water Meter

A charge of £107 per year

Henry uses an average of 180 litres of water each day.

Henry wants to pay as little as possible for the water he uses.
Should Henry have a water meter?

(Total for Question 327 is 5 marks)