BUMPER "BETWEEN PAPERS" PRACTICE

SUITABLE FOR BOTH FOUNDATION & HIGHER TIERS

SUMMER 2019

QUESTIONS

NOT A "BEST" GUESS PAPER.

NEITHER IS IT A "PREDICTION" ... ONLY THE EXAMINERS KNOW WHAT IS GOING TO COME UP! FACT! YOU ALSO NEED TO REMEMBER THAT JUST BECAUSE A TOPIC CAME UP ON PAPER 1 IT MAY STILL COME UP ON PAPERS 2 OR 3 ...

WE KNOW HOW IMPORTANT IT IS TO PRACTICE, PRACTICE, PRACTICE .... SO WE'VE COLLATED A LOAD OF QUESTIONS THAT WEREN'T EXAMINED IN THE PEARSON/EDEXCEL 9-1 GCSE MATHS PAPER 1 BUT WE CANNOT GUARANTEE HOW A TOPIC WILL BE EXAMINED IN THE NEXT PAPERS ...

ENJOY!
MEL & SEAGER

Q1. (a) Write 7300 correct to one significant figure.

(1)

(b) Write 5.69 correct to one significant figure.

(1)

Q2. (a) Write $\frac{1}{4}$ as a decimal.

(1)

(b) Write 0.15 as a fraction.

(1)

(c) Write 17 out of 40 as a fraction.

(1)

Q3. Jim rounds a number, *x*, to one decimal place. The result is 7.2
Write down the error interval for *x*.

(2)

Q4. Sameena has 10 m of ribbon on a reel.
She cuts 3 pieces of ribbon from the ribbon on the reel.
The lengths of the pieces are 41 cm, 3.7 m and 112 cm

Work out how much ribbon Sameena will have left on the reel.

(4)

Q5. (a) Write these numbers in order of size. Start with the smallest number.

0.401 0.46 0.37 0.439

(1)

(b) Write these numbers in order of size. Start with the smallest number.

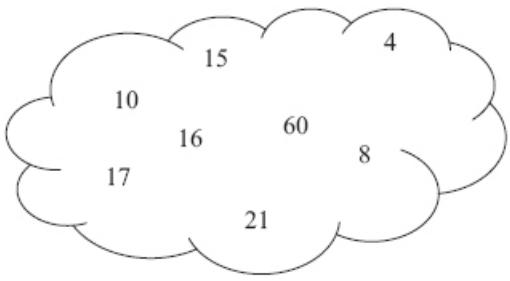
75% $\frac{7}{8}$ 0.25 $\frac{1}{2}$ $\frac{2}{3}$

(2)

Q6. Write down all the factors of 20

(2)

Q7. From the numbers in the cloud,



(a) write down a square number,

(1)

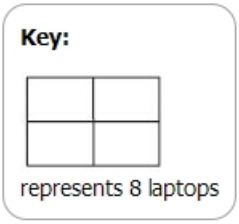
(b) write down a multiple of 7,

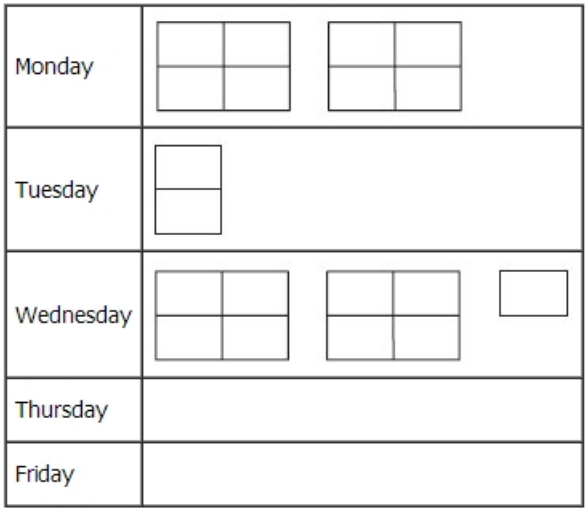
(1)

(c) write down a factor of 30

(1)

Q8. The pictogram shows the number of laptops sold in a shop on Monday, on Tuesday and on Wednesday.





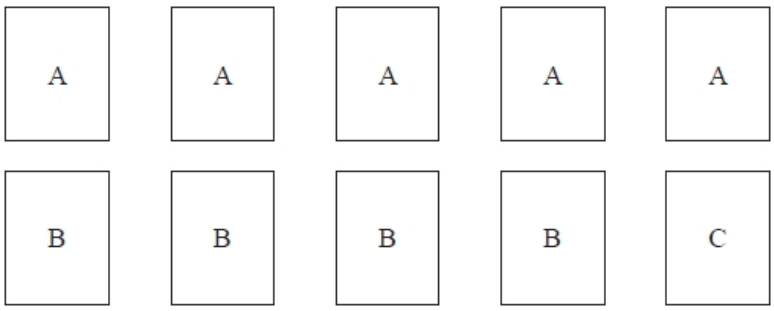
(a) How many laptops were sold on Wednesday?

(1)

On Thursday 2 laptops were sold.
On Friday 24 laptops were sold.
(b) Show this information on the pictogram.

(2)

Q9. Here are 10 cards. Each card has a letter on it.



Jai is going to take at random one of the cards.
(a) Draw a circle around the word which best describes the likelihood that
(i) the card will have an A on it,

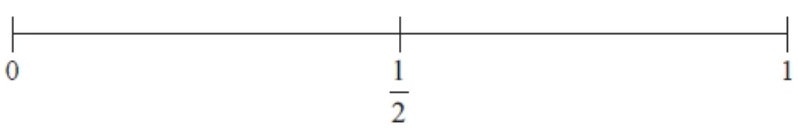
impossible unlikely evens likely certain

(ii) the card will have a C on it.

impossible unlikely evens likely certain

(2)

(b) On the probability scale, mark with a cross (×) the probability that the card will have a D on it.



(1)

Q10. (a) On the grid, draw a kite.

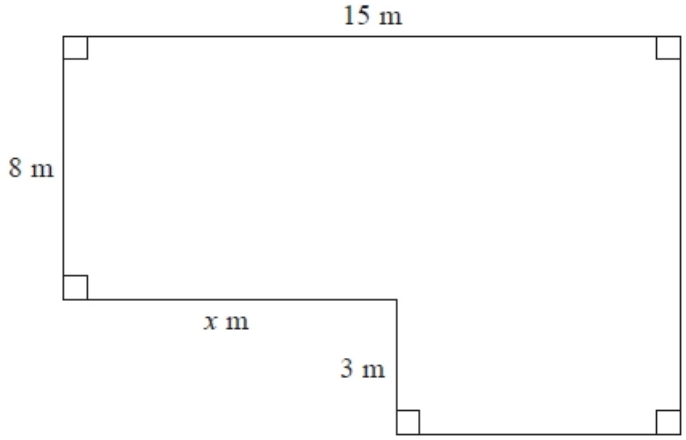
(1)

(b) Here is a quadrilateral.

Write down the special name of this quadrilateral.

(1)

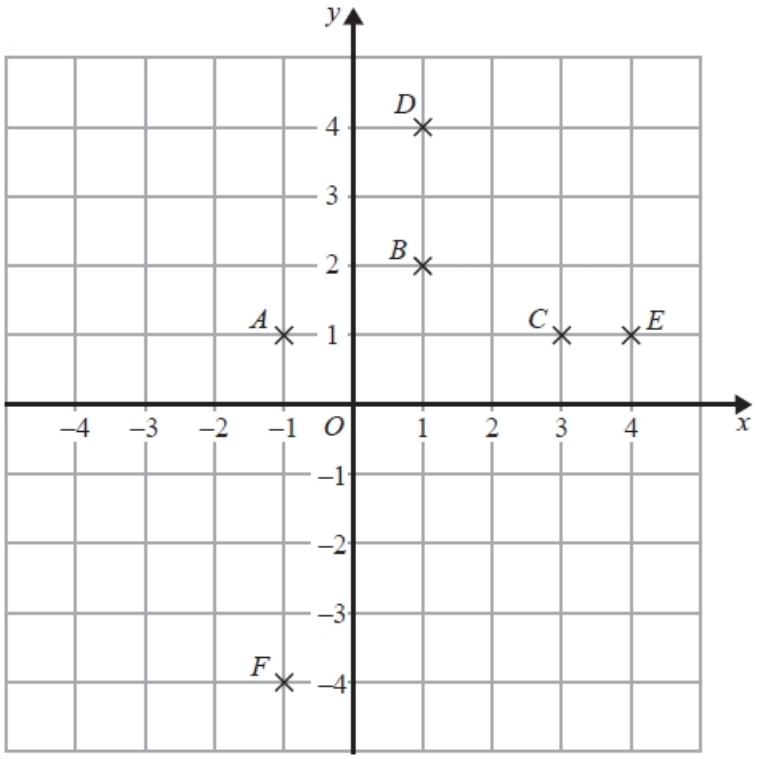
Q11. The diagram shows the plan of a floor.



The area of the floor is 138 m^2.
Work out the value of x.

(4)

Q12. The points A, B, C, D, E and F are shown on the grid.



One of these points has coordinates (4, 1).
(a) Which point?

(1)

(b) (i) On the grid, mark with a cross (×) a point P such that the shape $ABCP$ is a kite.
Label your point P.

(ii) Write down the coordinates of your point P.

(2)

Q13. A teacher asked Tyrese to find the value of $2n^2 - 3n$ when $n = 3$ Here is his working.

$2 \times 3^2 - 3 \times 3$
$= 6^2 - 9$
$= 36 - 9$
$= 27$

(i) What mistake has Tyrese made?

(1)

The teacher then asked Megan to find the value of $2n^2 - 3n$ when $n = -4$ Here is her working.

$2 \times -4^2 - 3 \times -4$
$= 2 \times -16 + 12$
$= -32 + 12$
$= -20$

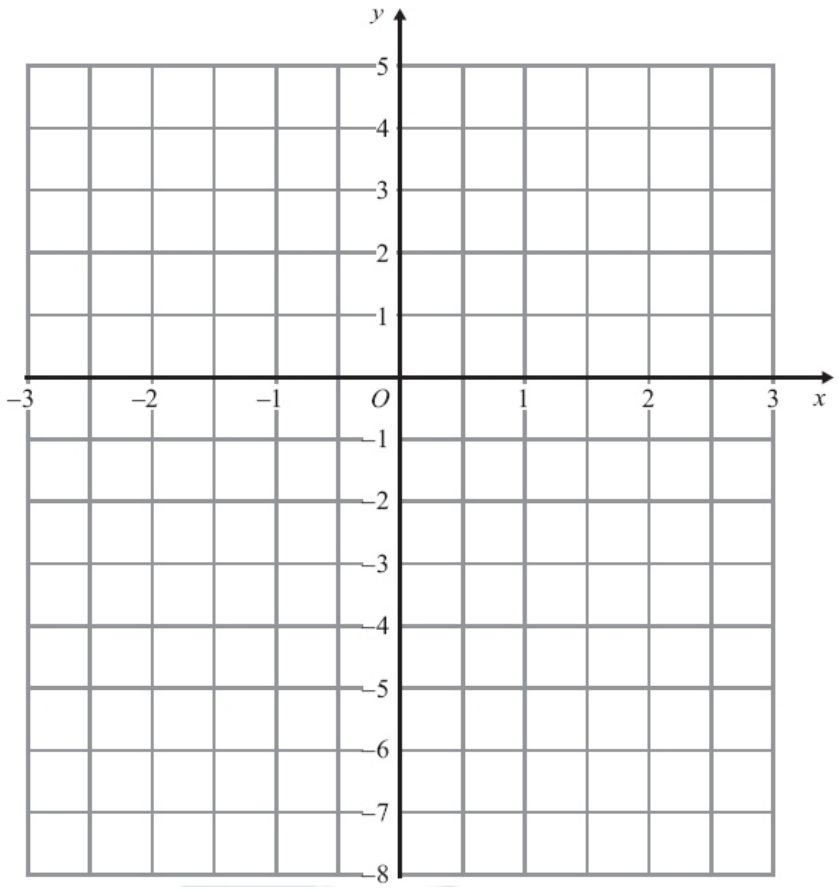
(ii) What mistake has Megan made?

(1)

Q14. Given $x = 4$
Work out the value of $2x^2 + 7$

(2)

Q15. On the grid, draw the graph of $y = 2x - 3$ for values of x from -2 to 2



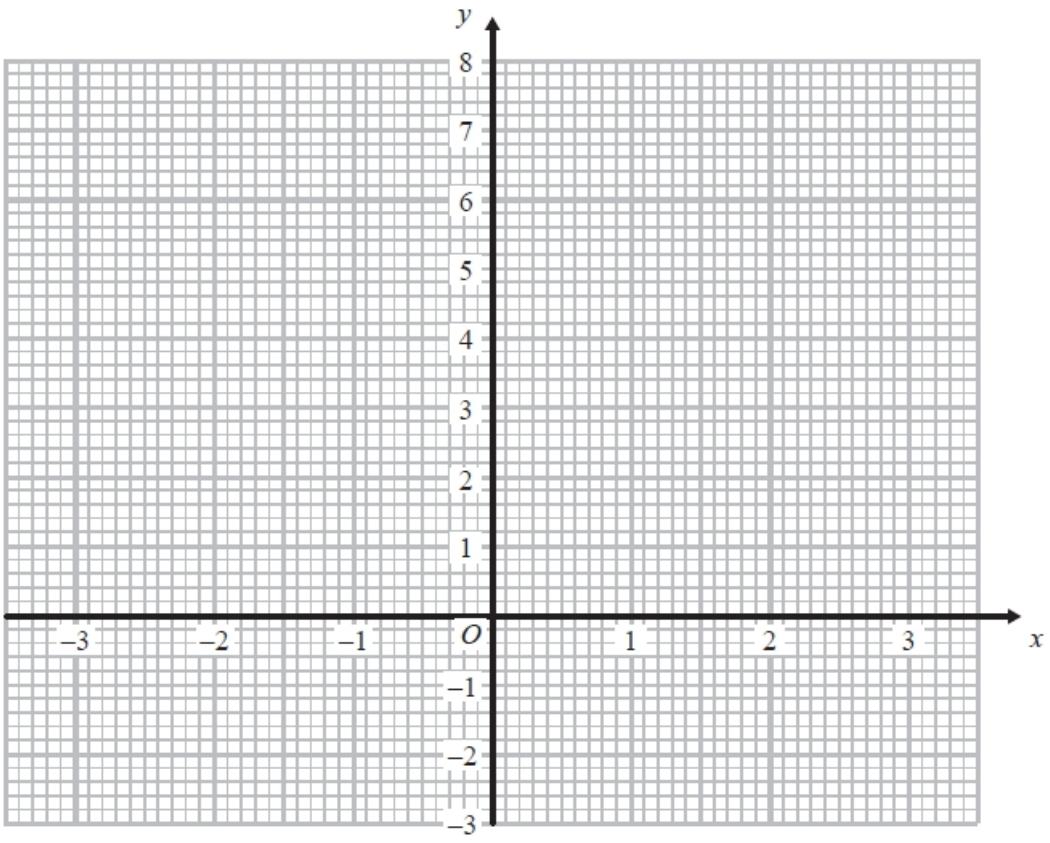
(3)

Q16. (a) Complete the table of values for $y = x^2 - 2$

x	–3	–2	–1	0	1	2	3
y		2	–1			2	7

(2)

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



(2)

Q17. Draw an enlargement, scale factor 2, of the triangle.

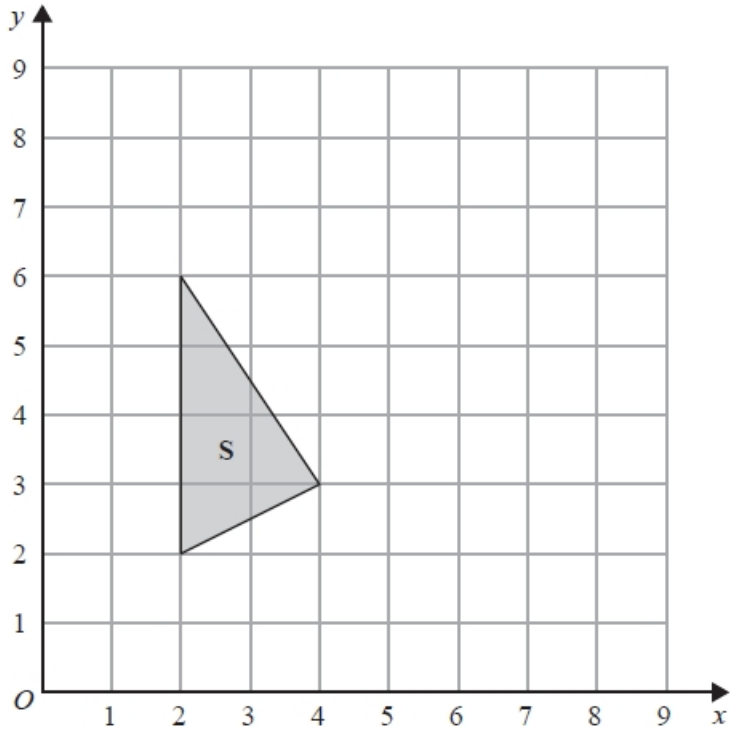
(2)

Q18.

(a) Rotate shape S 90° clockwise, centre (5, 4)
Label your image T.

(2)

(b) Describe fully the single transformation that will map shape T onto shape S.



(1)

Q19. Stephen is making soup.
He mixes one packet of soup with water to make 6 litres of soup.
Stephen has to make 90 bowls of soup.
He wants to put 0.2 litres of soup into each bowl.
How many packets of soup does Stephen need?

(3)

Q20. p is inversely proportional to t. When $t = 4$, $p = 12$
Find the value of p when $t = 6$

(3)

Q21. Veena bought some food for a barbecue. She is going to make some hot dogs.
She needs a bread roll and a sausage for each hot dog.
There are 40 bread rolls in a pack.
There are 24 sausages in a pack.
Veena bought exactly the same number of bread rolls and sausages.

(i) How many packs of bread rolls and packs of sausages did she buy?

. . . . . packs of bread rolls
. . . . . packs of sausages

(ii) How many hot dogs can she make?

. . . . . hot dogs (5)

Q22. Tom invested £1000 for 2 years with Bettabank. He got 2.5% simple interest each year.
Jay invested £1000 for 2 years with Moneyplus. She got a total of £60 interest for the 2 years.

Show that Jay got the better investment.

(3)

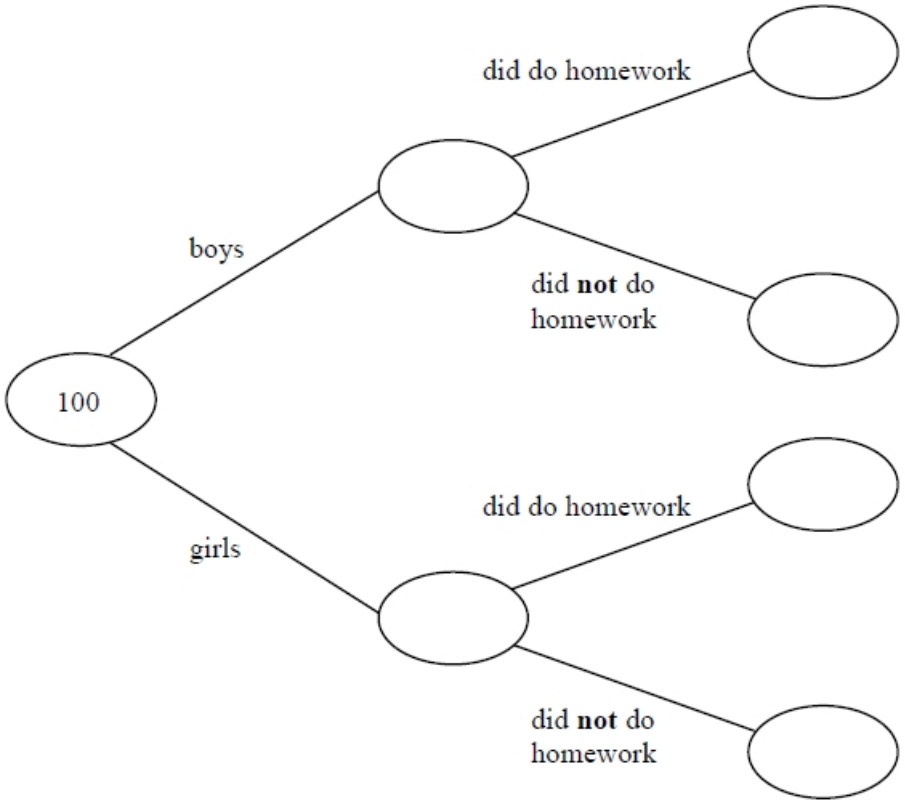
Q23. Write 504 as a product of powers of its prime factors.

(3)

Q24. 100 students had some homework.
42 of these students are boys.
8 of the 100 students did not do their homework.
53 of the girls did do their homework.

(a) Use this information to complete the frequency tree.

(3)

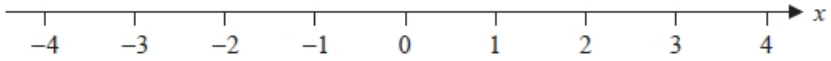


One of the girls is chosen at random.

(b) Work out the probability that this girl did not do her homework.

(2)

Q25. Here is a number line.



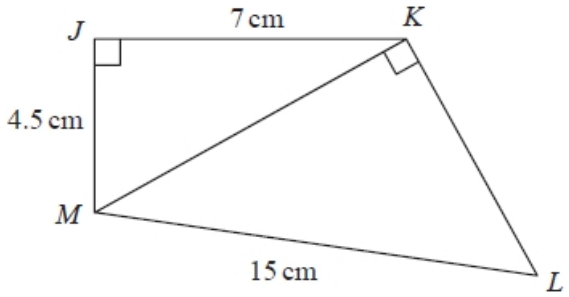
(a) On this number line, show the inequality $-2 \leq x < 3$

(2)

(b) Solve $5n + 3 > 27$

(2)

Q26. The diagram shows a quadrilateral *JKLM*.



Work out the size of angle *KLM*.
Give your answer correct to 3 significant figures.

(4)

Q27. Write these numbers in order of size. Start with the smallest number.

2.5×10^2 0.0025 2.5×10^{-2} 2500

(2)

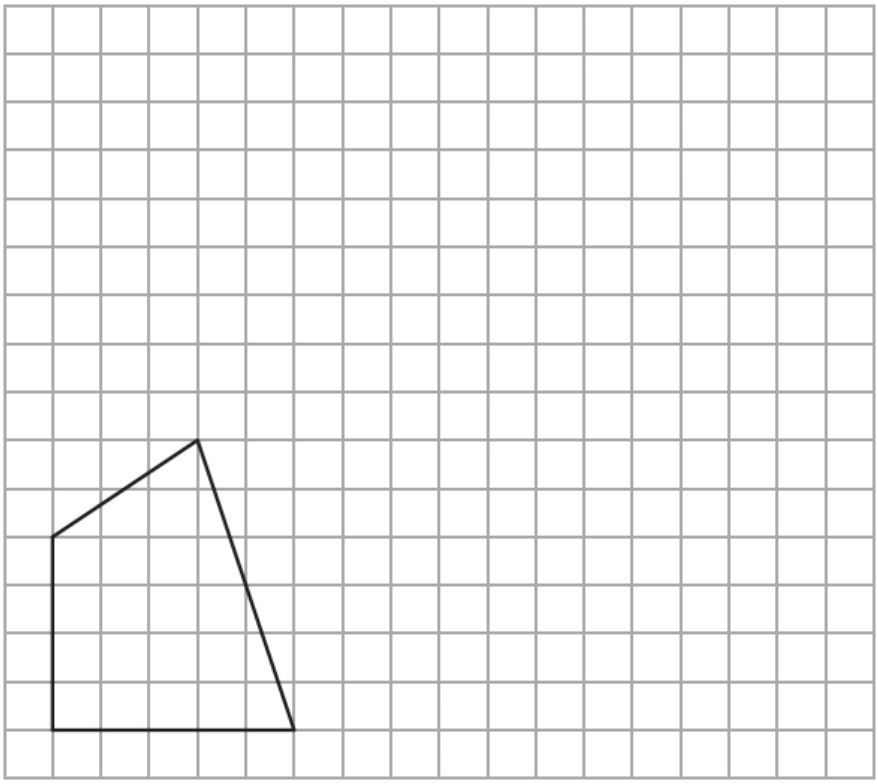
Q28. Anya has £40 000 to invest. She is going to invest in a scheme from either the building society or the bank.

	Scheme
Building Society	Invest £40 000 in an account at 3% per annum compound interest for 2 years.
Bank	Invest £40 000 in a bond that pays £2550 interest at the end of 2 years.

Anya wants to invest in the scheme that gives the most interest.
Which scheme should Anya invest in?

(4)

Q29.



On the grid, draw an enlargement of the shape with a scale factor of 2

(2)

Q30. (a) Write 4.7×10^{-1} as an ordinary number.

(1)

(b) Work out the value of $(2.4 \times 10^3) \times (9.5 \times 10^5)$
Give your answer in standard form.

.....

(2)

Q31. In the space below, use a ruler and compasses to construct an equilateral triangle with sides of length 5 cm.
You must show all your construction lines.

(2)

Q32. Here are nine numbers.

3 2 5 8 2 4 9 1 2

(a) Find the median.

(2)

(b) Find the range.

(2)

Q33. The diagram shows the position of two boats, *B* and *C*.

Boat *T* is on a bearing of 060° from boat *B*. Boat *T* is on a bearing of 285° from boat *C*.
In the space above, draw an accurate diagram to show the position of boat *T*.
Mark the position of boat *T* with a cross (×).
Label it *T*.

(3)

Q34. (a) Simplify $a^4 \times a^5$

(1)

(b) Simplify $\frac{45e^6f^8}{5ef^2}$

(2)

(c) Write down the value of $9^{\frac{1}{2}}$

(1)

Q35. Make *h* the subject of the formula $x = 5h + 8$

(2)

Q36. Here is a list of numbers.

4 8 5 9 10 5 6 3 4

(a) Work out the median.

(2)

(b) Work out the mean.

(2)

Q37. Make t the subject of the formula $w = 3t + 11$

(2)

Q38. There are 25 students in a class. 12 of the students are girls.
Here are the heights, in cm, of the 12 girls.

160 173 148 154 152 164 179 164 162 174 168 170

(a) Show this information in an ordered stem and leaf diagram.

14	
15	
16	
17	

(3)

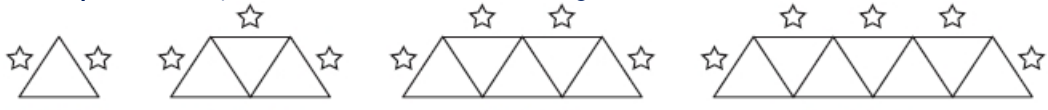
There are 13 boys in the class. Here are the heights, in cm, of the 13 boys.

157 159 162 166 168 169 170 173 174 176 176 181 184

(b) Compare the heights of the boys with the heights of the girls.

(3)

Q39. Here is a sequence of patterns made from triangles and stars.



Pattern 1 Pattern 2 Pattern 3 Pattern 4

(a) How many stars are needed for Pattern 5?

(1)

(b) How many triangles are needed for Pattern 6?

(1)

A pattern in the sequence is made from exactly 10 stars.
(c) How many triangles are needed for this pattern?

(2)

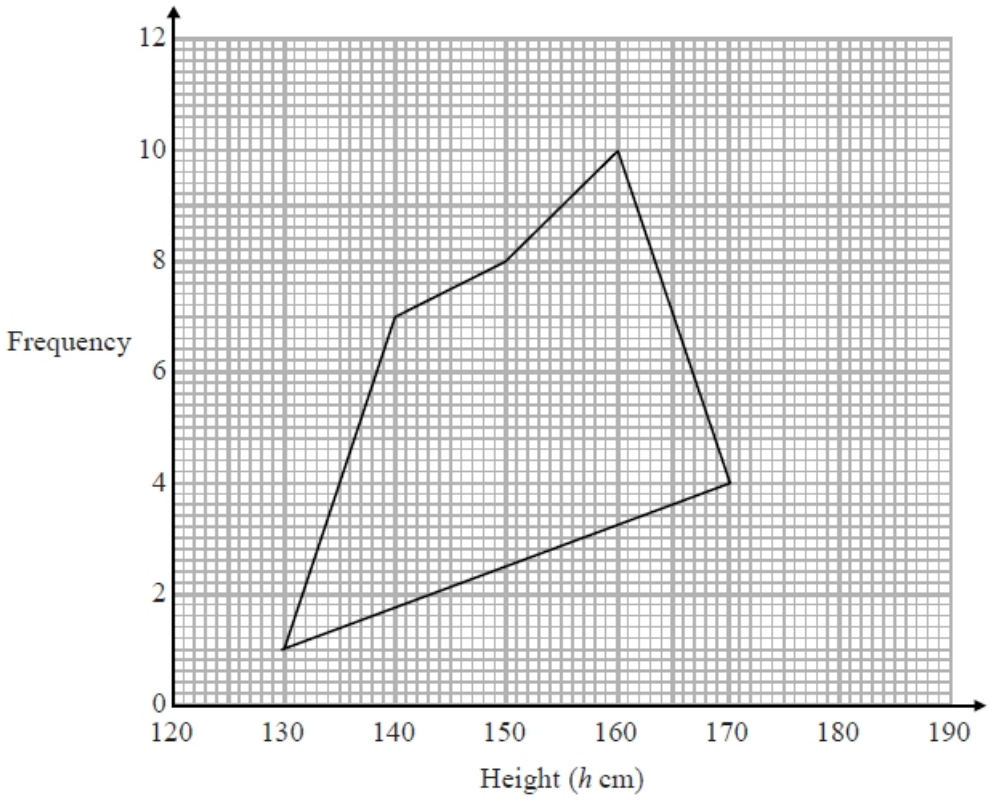
Q40. The grouped frequency table gives information about the heights of 30 students.

Height (h cm)	Frequency
$130 < h \leqslant 140$	1
$140 < h \leqslant 150$	7
$150 < h \leqslant 160$	8
$160 < h \leqslant 170$	10
$170 < h \leqslant 180$	4

(a) Write down the modal class interval.

(1)

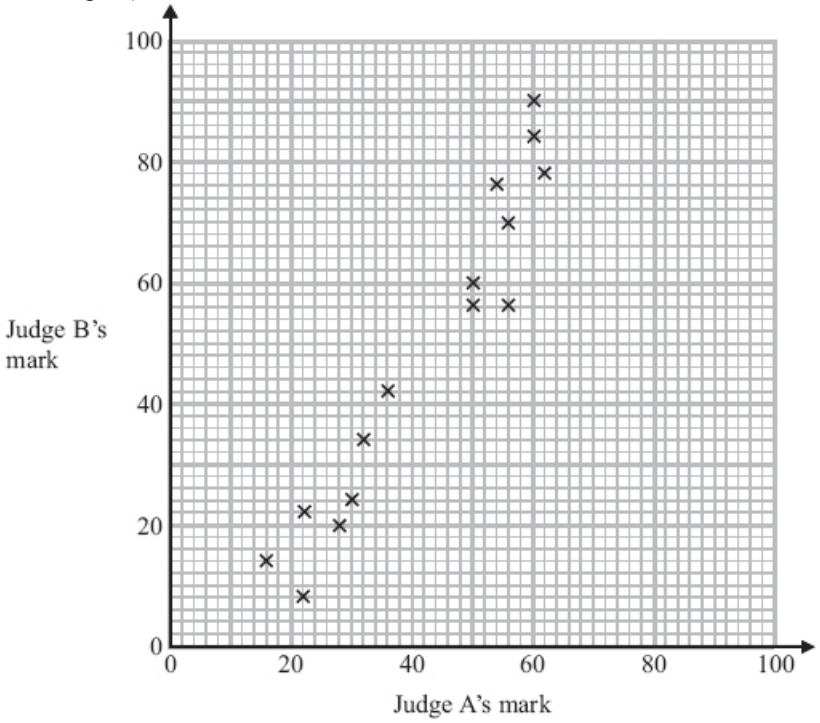
This incorrect frequency polygon has been drawn for the information in the table.



(b) Write down two things wrong with this incorrect frequency polygon.

(2)

Q41.Some children took part in a piano competition. Each child was given a mark from Judge A and from Judge B. The scatter graph below shows some of this information.



(a) Describe the correlation.

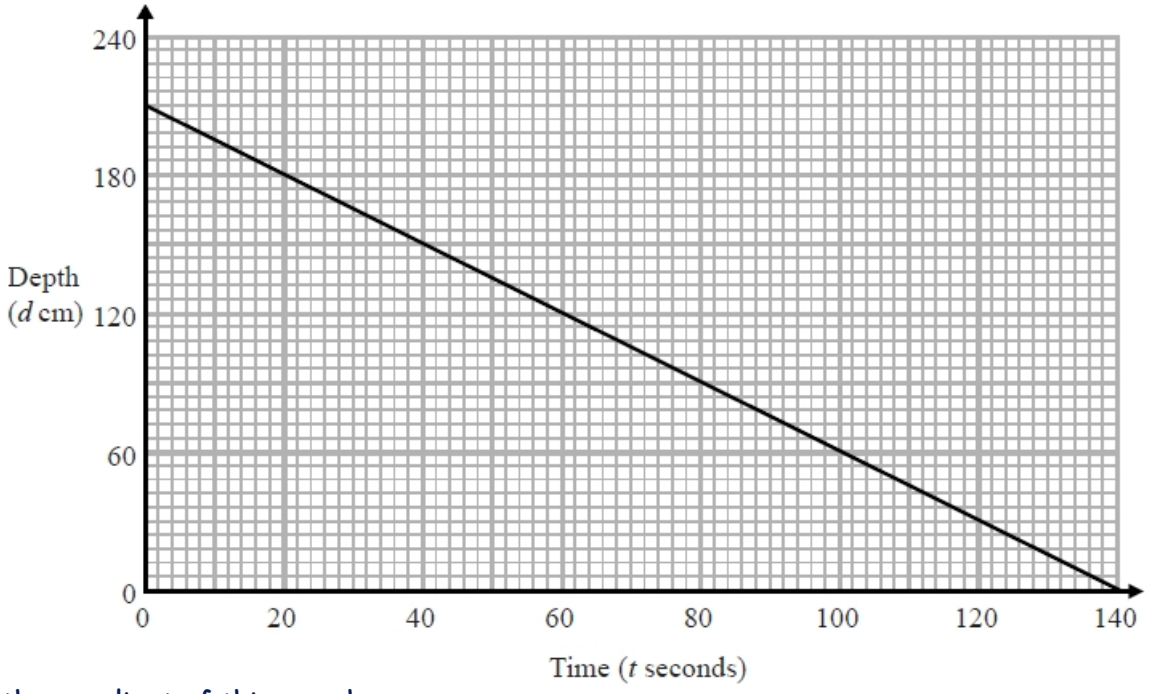
(1)

Judge A gives 44 marks to another child.

(b) Use the scatter graph to estimate Judge B's mark for this child.

(2)

Q42. The graph shows the depth, d cm, of water in a tank after t seconds.



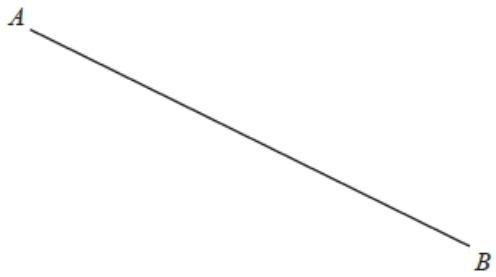
(a) Find the gradient of this graph.

(2)

(b) Explain what this gradient represents.

(1)

Q43. In the space below, use ruler and compasses to construct the perpendicular bisector of line AB.

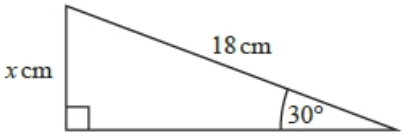


(2

Q44. 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.

(4)

Q45. Work out the value of x.

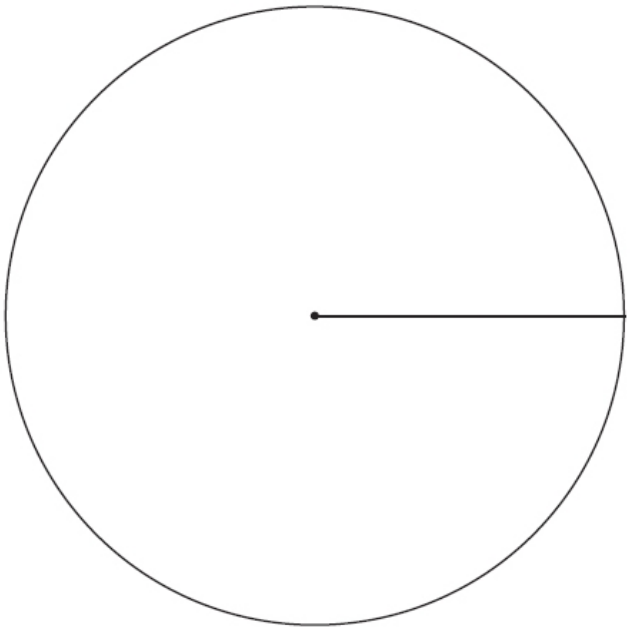


(2)

Q46. Mike asked 60 students to name their favourite fruit. Here are his results.

Favourite Fruit	Frequency
Apple	18
Banana	23
Orange	9
Pear	10

Draw an accurate pie chart for his results.



(4)

Q47. *XYW* is a straight line. Work out the size of the angle marked You must give reasons for your answer.

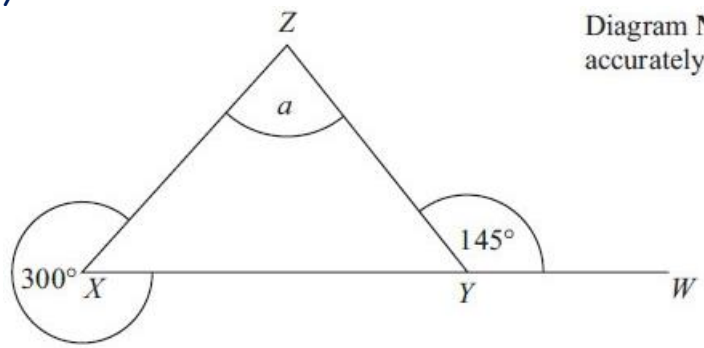
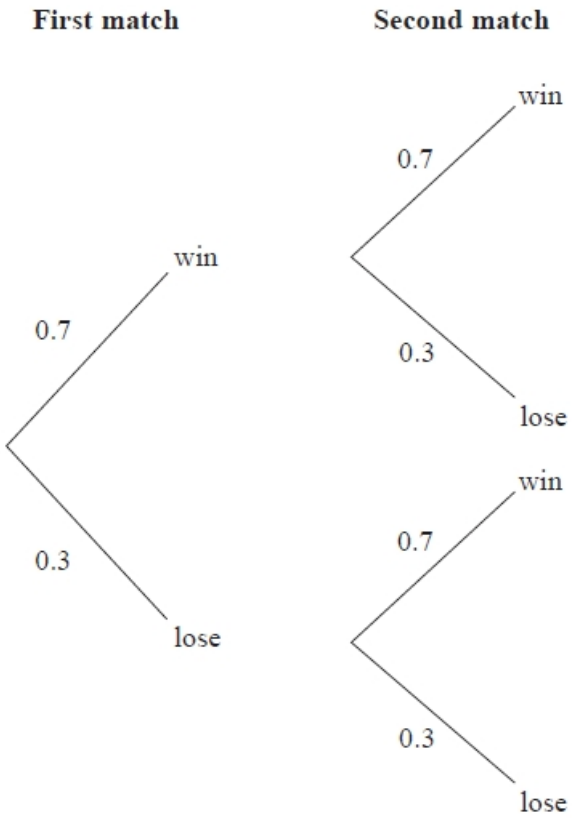


Diagram **NOT** accurately drawn

(4)

Q48.Finlay plays two tennis matches. The probability that he will win a match and the probability that he will lose a match are shown in the probability tree diagram.



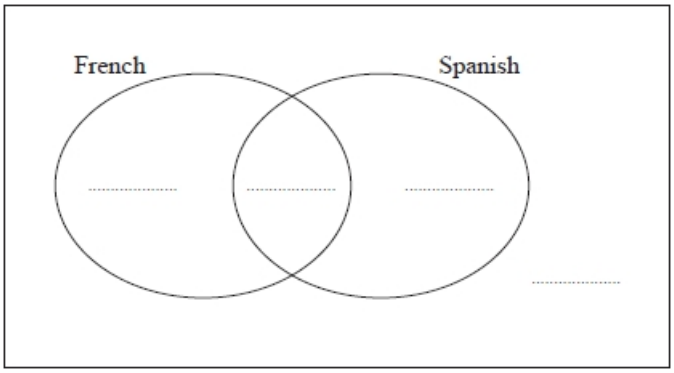
(a) Work out the probability that Finlay wins both matches.

(2)

(b) Work out the probability that Finlay loses at least one match.

(2)

Q49.There are 60 students at a college.
20 students study both French and Spanish.
13 students study French but not Spanish.
A total of 43 students study Spanish.
(a) Complete the Venn diagram for this information.



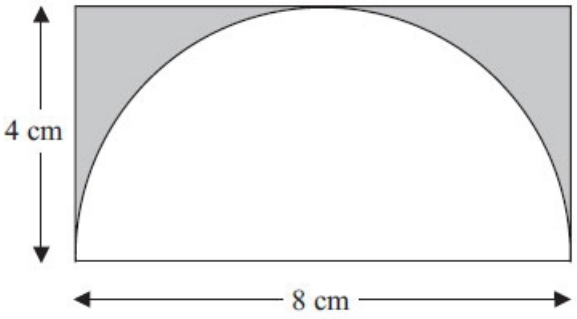
(3)

One of the students at the college is to be selected at random.
(b) Write down the probability that this student studies neither French nor Spanish.

(1)

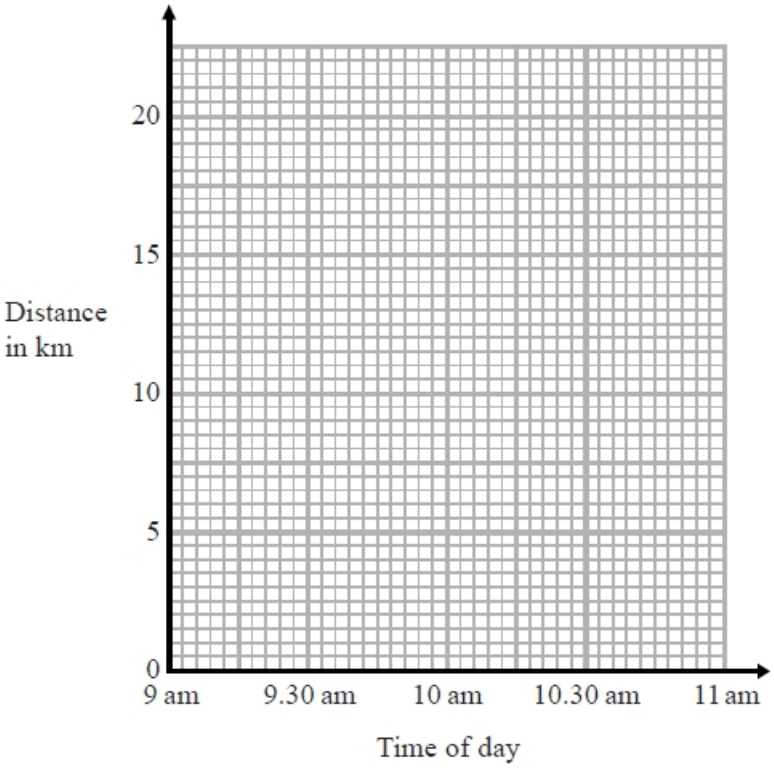
Q50. The diagram shows a semicircle drawn inside a rectangle.

The semicircle has a diameter of 8 cm.
The rectangle is 8 cm by 4 cm.
Work out the area of the shaded region.
Give your answer correct to 3 significant figures.



(4)

Q51. 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.

(2)

Q52. The table shows information about the number of children in each of 40 families.

Number of children	Frequency
0	6
1	13
2	12
3	7
4	2
5 or more	0

(a) Find the median number of children.

(1)

(b) Work out the total number of children.

(2)

Q53. Here are the first five terms of an arithmetic sequence.

−3 1 5 9 13

Find an expression, in terms of *n*, for the *n*th term of this sequence.

(2)

Q54. (a) Work out $\frac{2}{7} + \frac{1}{5}$

(2)

(b) Work out $1\frac{2}{3} \div \frac{3}{4}$

(2)

Q55. In a tin of baked beans,

weight of beans : weight of tomatoes : weight of other ingredients = 3 : 2 : 1

There are 150 g of tomatoes in the tin.

Work out the weight of the beans.

(2)

Q56. *ABCDE* is a regular pentagon. *ACFG* is a square. Work out the size of angle *DCF*. You must show all your working.

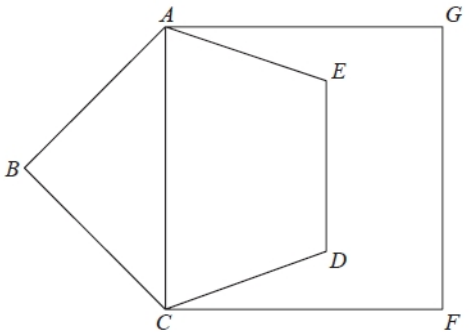


Diagram **NOT** accurately drawn

(4)

Q57.

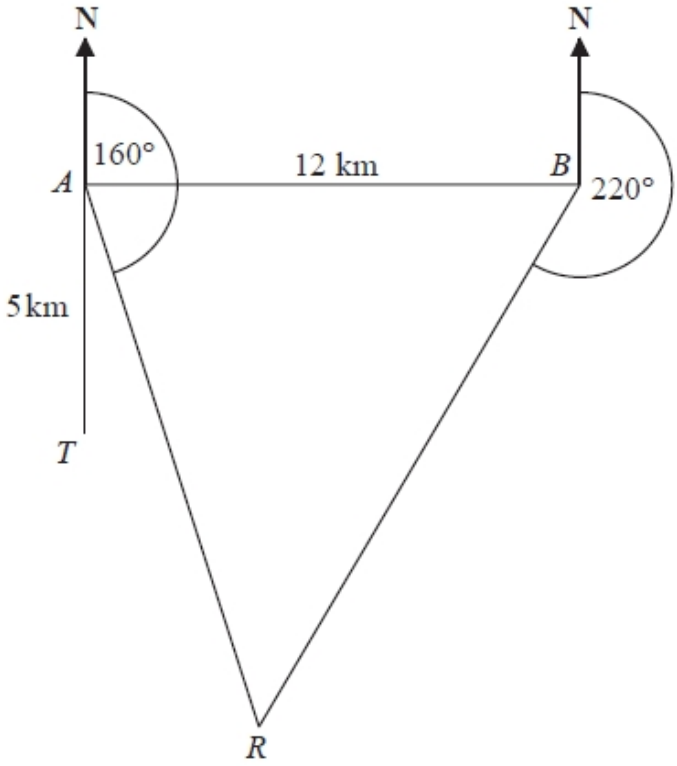


Diagram **NOT** accurately drawn

There is a coastguard station at point *A* and at point *B*.
B is due East of *A*.
The distance from *A* to *B* is 12 km.
There is a rowing boat at point *R*.
R is on a bearing of 160° from A.
R is on a bearing of 220° from B.
There is a speedboat at point *T*.
T is 5 km due South of *A*.
Work out the shortest distance from *T* to *R*.
Give your answer correct to 1 decimal place.
You must show all your working.

(5)

Q58. Factorise $x^2 + 3x - 4$

(2)

Q59. $\mathbf{a} = \begin{pmatrix} 1 \\ 4 \end{pmatrix}$ and $\mathbf{b} = \begin{pmatrix} 3 \\ 2 \end{pmatrix}$

(a) Write down as a column vector

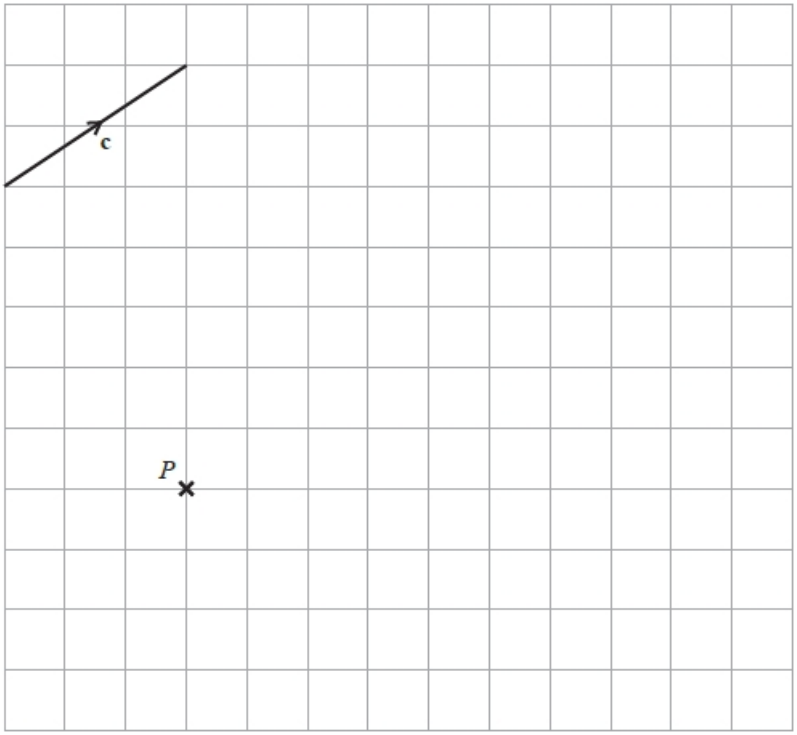
(i) a + b

(1)

(ii) 2a + 3b

(2)

The vector c is drawn on the grid.



(b) From the point *P*, draw the vector 3c

(1)

Q60. 3 teas and 2 coffees have a total cost of £7.80
5 teas and 4 coffees have a total cost of £14.20
Work out the cost of one tea and the cost of one coffee.

(4)