

Surname
Other Names

Centre Number

Candidate Number
0



GCSE

185/11

MATHEMATICS

WALES PILOT

FOUNDATION TIER

PAPER 1

Grade G F E D C
Mark 20 30 45 55 70

P.M. WEDNESDAY, 9 November 2011

2 hours

**CALCULATORS ARE
NOT TO BE USED
FOR THIS PAPER**

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** the questions in the spaces provided.

Take π as 3.14.

INFORMATION FOR CANDIDATES

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

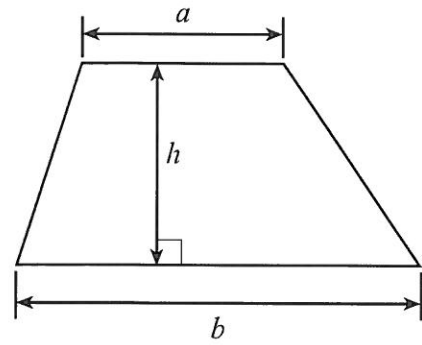
Scale drawing solutions will not be acceptable where you are asked to calculate.

The number of marks is given in brackets at the end of each question or part-question.

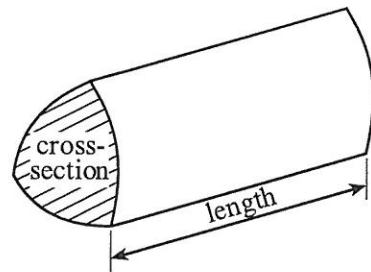
For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1	5	5
2	6	11
3	6	17
4	4	21 \Rightarrow G
5	3	24
6	5	29 \Rightarrow F
7	9	38
8	5	43 \Rightarrow E
9	7	50
10	4	54 \Rightarrow D
11	6	60
12	3	63
13	7	70 \Rightarrow C
14	3	
15	5	
16	7	
17	3	
18	7	
19	5	
TOTAL MARK		

Formula List


Area of trapezium = $\frac{1}{2}(a + b)h$



Volume of prism = area of cross-section \times length



1. (a) (i) Complete the following cheque by writing the amount in figures on the line provided.

 Popular Bank	<u>Date</u> 7th November 2011
<u>Pay</u> A N Other	
<u>Forty six thousand seven hundred</u>	£ <u>46705</u>
<u>and five pounds only</u>	Signed _____

- (ii) Complete the following cheque by writing the amount in words on the lines provided.

 Popular Bank	<u>Date</u> 7th November 2011
<u>Pay</u> S O Else	
<u>Nine thousand four hundred</u>	£ <u>9417</u>
<u>and Seventeen</u>	Signed _____

[2]

- (b) Write the following numbers in order of size, starting with the smallest.

64 406 640 46 604 460
46 64 406 460 604 640

[1]

- (c) Write down

- (i) the sum of 54 and 48,
 adds

$$\begin{array}{r}
 54 \\
 + 48 \\
 \hline
 102
 \end{array}$$

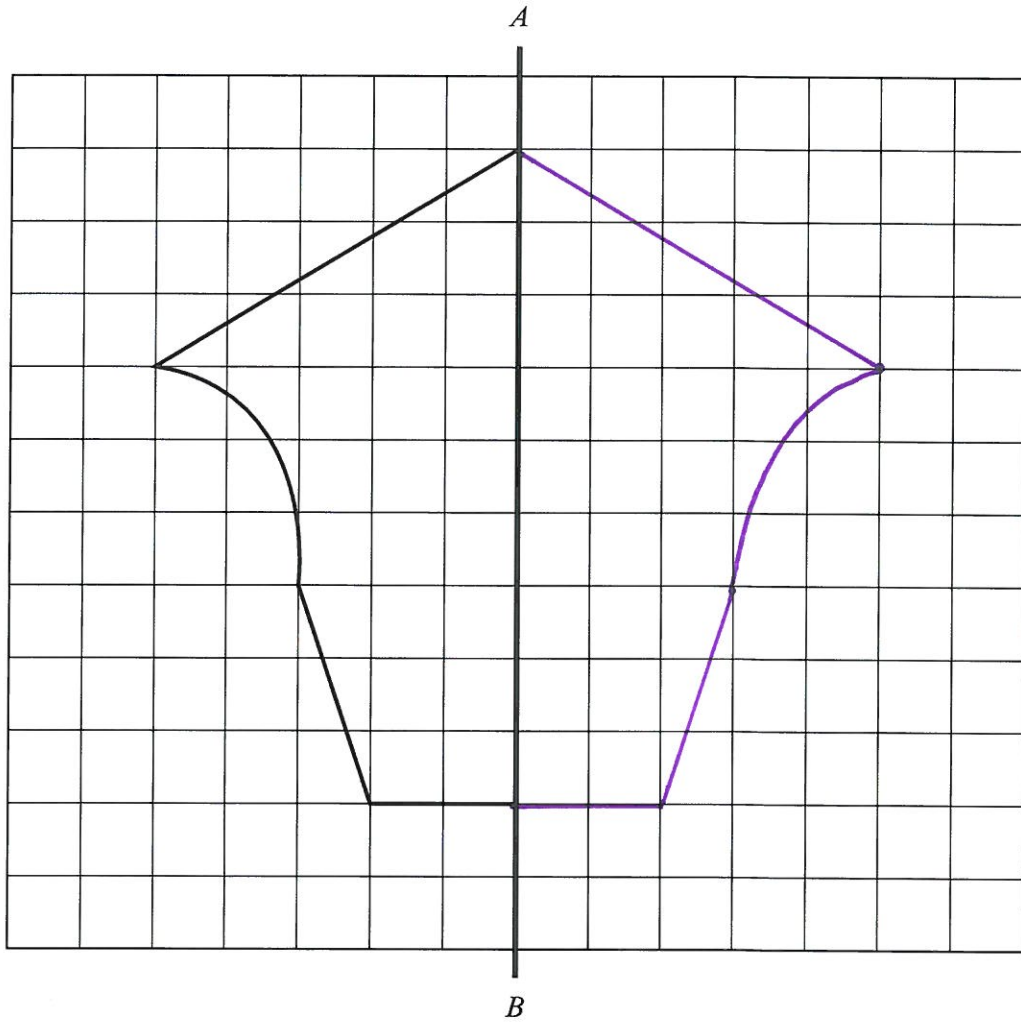
- (ii) the number which must be added to 85 to make 113.

$$\begin{array}{r}
 101 \\
 \times 3 \\
 - 85 \\
 \hline
 28
 \end{array}$$

[2]

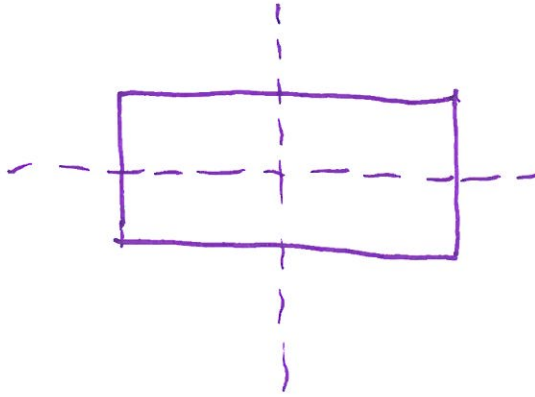
2. (a) Complete the following shape so that it is symmetrical about the line AB .

[2]



- (b) Draw and name a quadrilateral which has exactly 2 lines of symmetry.

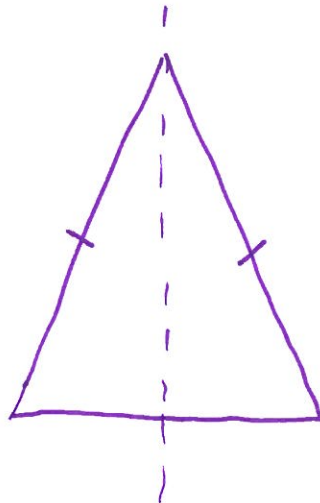
[2]



Name of quadrilateral rectangle

- (c) Draw and name a triangle which has exactly 1 line of symmetry.

[2]



Name of triangle isosceles

THU

6

Examiner
only

3. (a) (i) Write down the smallest four digit number that can be made using all the numbers 7, 5, 8 and 2.

2578

- (ii) Write down the largest odd four digit number that can be made using all the numbers 7, 5, 8 and 2.

8725

[2]

- (b) Write 4736

- (i) correct to the nearest 10,

4740

- (ii) correct to the nearest 100.

4700

[2]

- (c) How many tickets at £4.94 each can be bought with two £20 notes?

↓ £5 £40 ÷ 5 = 8

8 tickets

[2]

4. Circle the quantity that is the appropriate estimate for the following.

Volume of a kettle	<u>1 litre</u>	100 ml	10 cm ³	1 cl
Weight of a woman	60 g	<u>60 kg</u>	60 mg	600 kg
Distance from London to Paris	3400 km	<u>340 km</u>	34 km	3.4 km
Area of this page	<u>600 cm²</u>	6 m ²	60 mm ²	600 cm ³

[4]

30 x 20 = 600 cm²

G

5. In a raffle, 20 yellow tickets numbered 1 to 20 and 30 green tickets numbered 1 to 30 are sold. All 50 tickets are put in a drum and one ticket is chosen at random.

(a) What is the probability that the yellow ticket with the number 7 on it is selected?

$$\frac{1}{50}$$

[1]

- (b) Harry says that the probability of choosing a ticket with the number 16 on it is more than the probability of choosing a ticket with the number 26 on it.

Explain, giving full details, whether or not Harry is correct.

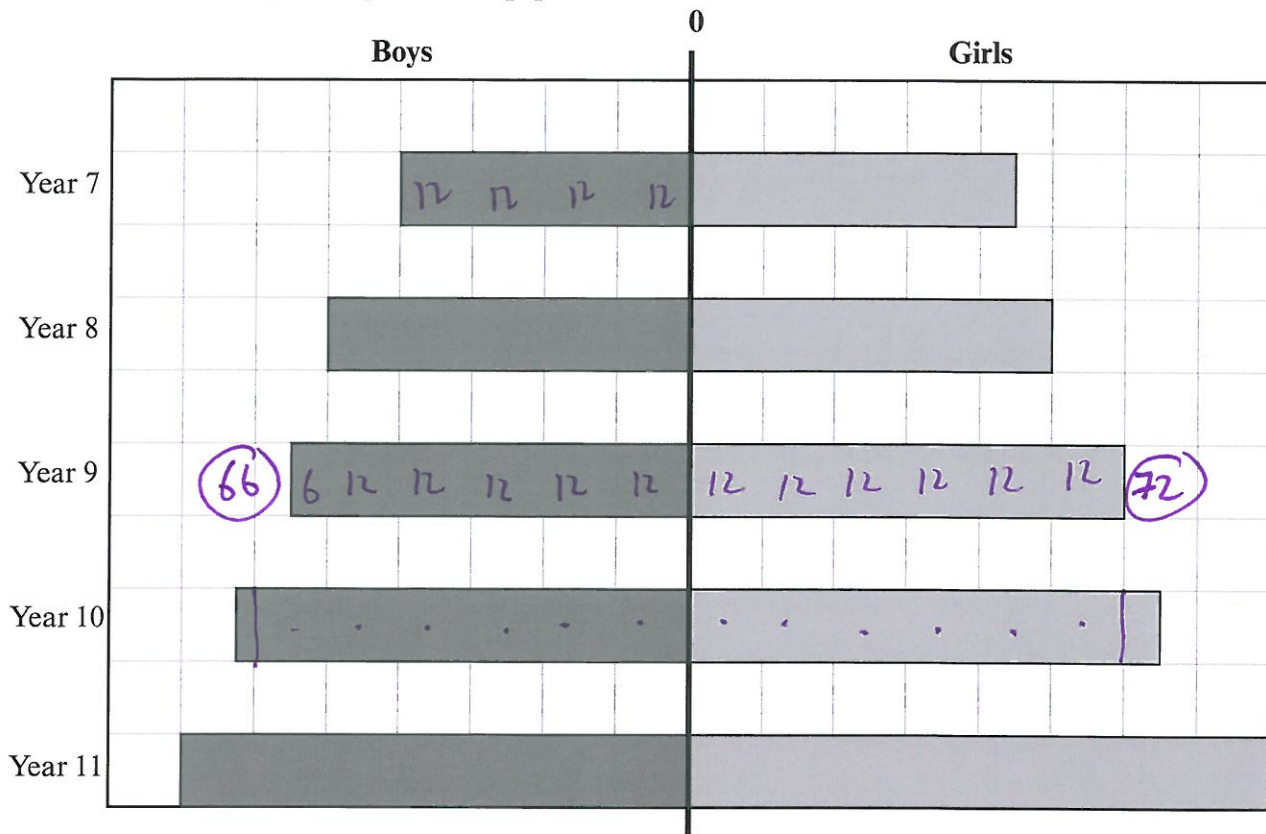
Harry is correct because there are two tickets with 16 on 16 $\frac{2}{50}$

but only one ticket with 26 on $\frac{1}{50}$

[2]

6. The chart shows the number of boys and girls in each year in a school.

Each full square represents 12 pupils.



- (a) How many boys are there in Year 7?

48

[1]

- (b) How many more girls than boys are there in Year 9?

$72 - 66 = 6$ more

[1]

- (c) Estimate the total number of pupils in Year 10.

$12 \times 12 = 144 + 10 = 154$ pupils

[2]

- (d) Have the number of pupils joining the school risen or fallen over the last 5 years?
Explain your answer.

It has fallen - when Year 11 were in Year 7, five years ago there were more of them. The numbers have got smaller every year since

[1]

(F)

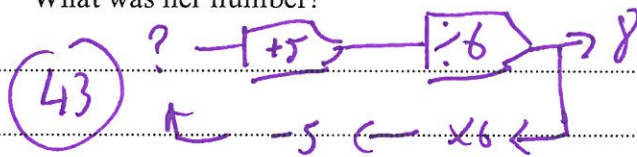
7. (a) Write down the next term in **each** of the following sequences.

(i) 3, $+6$ 9, $+6$ 15, $+6$ 21, $+6$ 27

(ii) 85, -7 78, -7 71, -7 64, -7 57

[2]

- (b) Miranda thinks of a number.
She adds 5 to her number then divides the answer by 6.
Her answer is 8.
What was her number?



[2]

- (c) Simplify $5h + 6h - 4h$.

$7h$

[1]

- (d) Find the value of $5a + 3b$, when $a = 6$ and $b = 4$.

$5 \times 6 + 3 \times 4$

$30 + 12 = 42$

[2]

- (e) There is a connection between the x and y coordinates of the following points.

$\begin{matrix} \times 4 \\ (1, 4) \end{matrix}$ $\begin{matrix} \times 4 \\ (2, 8) \end{matrix}$ $\begin{matrix} \times 4 \\ (3, 12) \end{matrix}$ $\begin{matrix} \times 4 \\ (4, 16) \end{matrix}$

Complete the coordinates for the following two points which follow the same pattern.

$\begin{matrix} \times 4 \\ (10, \dots) \\ 40 \end{matrix}$ $\begin{matrix} \times 4 \\ (a, \dots) \\ 4a \end{matrix}$

[2]

8. (a) The diagram shows a number of cubes of side 1 cm forming a solid shape.

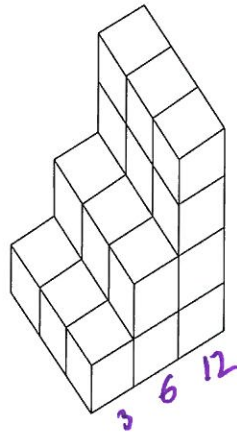


Diagram not drawn to scale

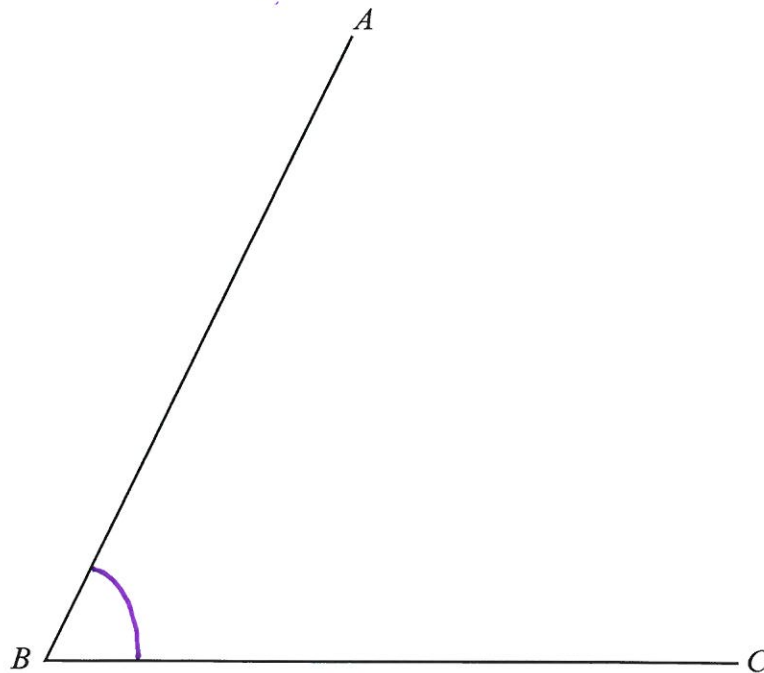
Find, by counting the cubes, the volume of the shape and state the units of your answer.

$$3 + 6 + 12 = 21 \text{ cm}^3$$

Volume of the shape =

[2]

- (b) (i) Measure the size of \hat{ABC} .



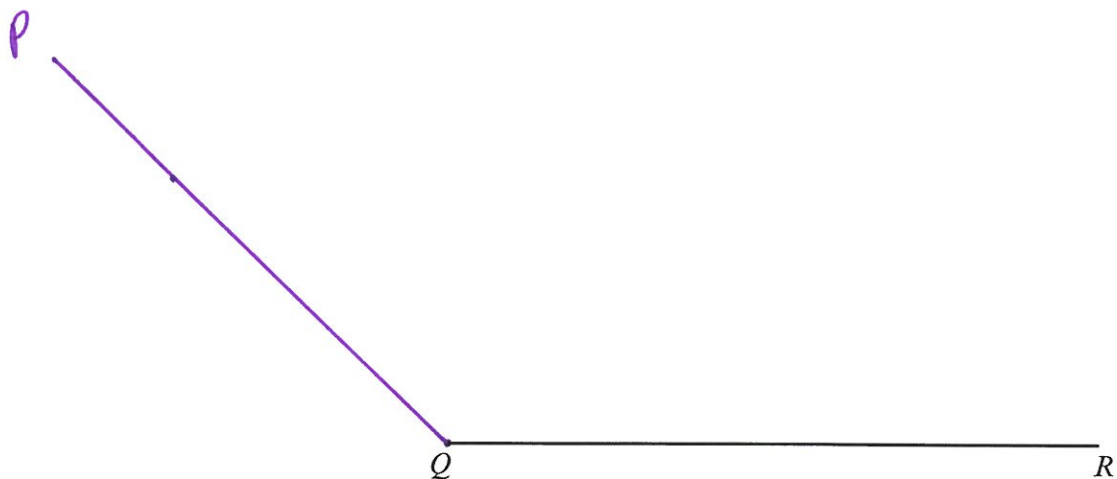
$$\hat{ABC} = 64^\circ$$



11

Examiner
only

- (ii) On the diagram below, draw the line PQ so that $\hat{PQR} = 136^\circ$.



0185
110011

- (iii) What type of angle is \hat{PQR} ?

Obtuse

[3]



9. (a) Simon has made 237 jugs to sell.
He packs them in crates that hold 32 jugs each.
How many full crates will he have and how many jugs will be left over?

less than 10 as $10 \times 32 = 320$

$$\begin{array}{r} \text{by } 7 \quad 32 \\ \times 7 \\ \hline 224 \end{array} \quad \text{7 crates with 13 left over.}$$

[3]

- (b) Calculate

- (i) $\frac{3}{8}$ of 56,

$$\frac{1}{8} \quad 56 \div 8 = 7$$

$$\frac{3}{8} \quad 3 \times 7 = 21$$

[2]

- (ii) 7% of 500.

$$1\% \text{ of } 500 = 5$$

$$7\% = 5 \times 7 = 35$$

[2]

10. Chris goes for a drive in his car. He stops twice during his journey. The graph shows his journey.

(a) How far did Chris travel between 09:00 and 10:00?

30 miles

[1]

(b) For how many minutes altogether did Chris stop on his journey?

42 + 30 = 72 mins

[1]

(c) Without calculating any speeds, explain how you can decide whether Chris was driving faster before or after stopping for the first time?

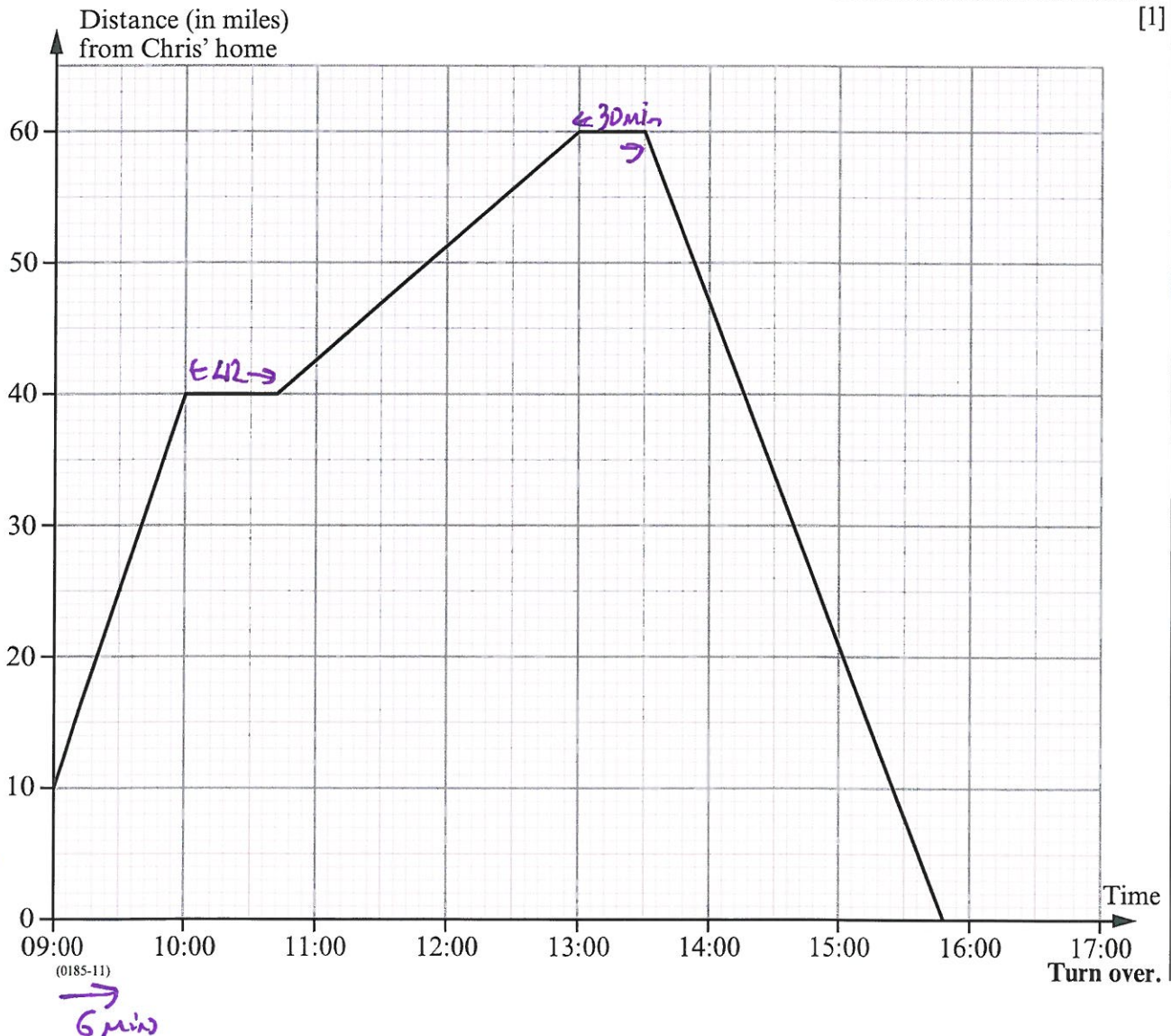
Chris was driving faster before his first stop because the line on the graph is steeper there.

[1]

(d) At what time did he arrive home?

15:48

[1]



11. The following are parts of rail timetables between Swindon and Coventry and between Coventry and Durham.

↓

Swindon		14:29	15:29	16:29	17:29	18:29
Reading	arrive	15:00	16:00	17:00	17:55	19:01
	depart	15:11	16:11	17:11	18:11	19:11
Coventry		16:22	17:23	18:22	19:22	20:25

Coventry		16:27	16:49	17:27	17:49	18:49
Birmingham	arrive	16:48	17:16	17:48	18:17	19:17
	depart	17:03	17:30	18:03	18:30	19:30
Durham		20:22	20:30	21:25	21:39	22:30

- (a) Denise catches the 15:29 train from Swindon to Coventry.
How long does the journey take?

$17:23 - 15:29 = 1\text{ hr } 54\text{ mins}$

[2]

- (b) John arrives at Reading station at 14:55.
He travels on the next train to Coventry for a meeting which, including the walk to and from the station, takes a total of 1 hour 20 minutes.
He then catches the next train to Durham.
When does he arrive at Durham?

Arrives @ Coventry 16:22

back @ station 17:42

catches 17:49 train from Coventry

Arrives @ Durham 21:39

[4]

12. (a) All prime numbers are odd numbers.
Explain why that statement is wrong.

because 2 is a prime number

[1]

- (b) If you know what 0.25 of a number is, explain how you can find the value of the number.

$\times 4$

[1]

- (c) Explain which of $\frac{3}{5}$ or 65% is the larger.

$\frac{3}{5} \times 100$ $\frac{1}{5}$ is $100 \div 5 = 20$ so $\frac{3}{5}$ $3 \times 20 = 60\%$

so 65% is larger than $\frac{3}{5}$

[1]

13. A red bag contains three discs numbered 3, 4 and 5 respectively.
A blue bag contains four discs numbered 2, 3, 5 and 7 respectively.
In a game, a player takes one disc at random from each of the two bags.
The score for the game is the sum of the two numbers on the discs.

- (a) Complete the following table, by writing in the missing disc numbers and all the possible scores.
Some have been done for you.

	7	10	11	12
	5	8	9	10
Blue bag	3	6	7	8
	2	5	6	7
		3	4	5
		Red bag		

- (b) Find the probability that the score for one game is less than 9.

$$\frac{7}{12}$$

- (c) In a game, a player wins if he or she scores less than 9.

240 people each play the game once.

Approximately how many would you expect to win a prize?

$$240 \div 12 = 20 \text{ groups} \times 7 \text{ winners} = 140 \text{ winners.}$$

14. Use the fact that $54 \times 116 = 6264$ to write down the answers to the following.

(a) $5.4 \times 11.6 =$

$$62.64$$

(b) $0.54 \times 116 =$

$$62.64$$

(c) $626.4 \div 54 =$

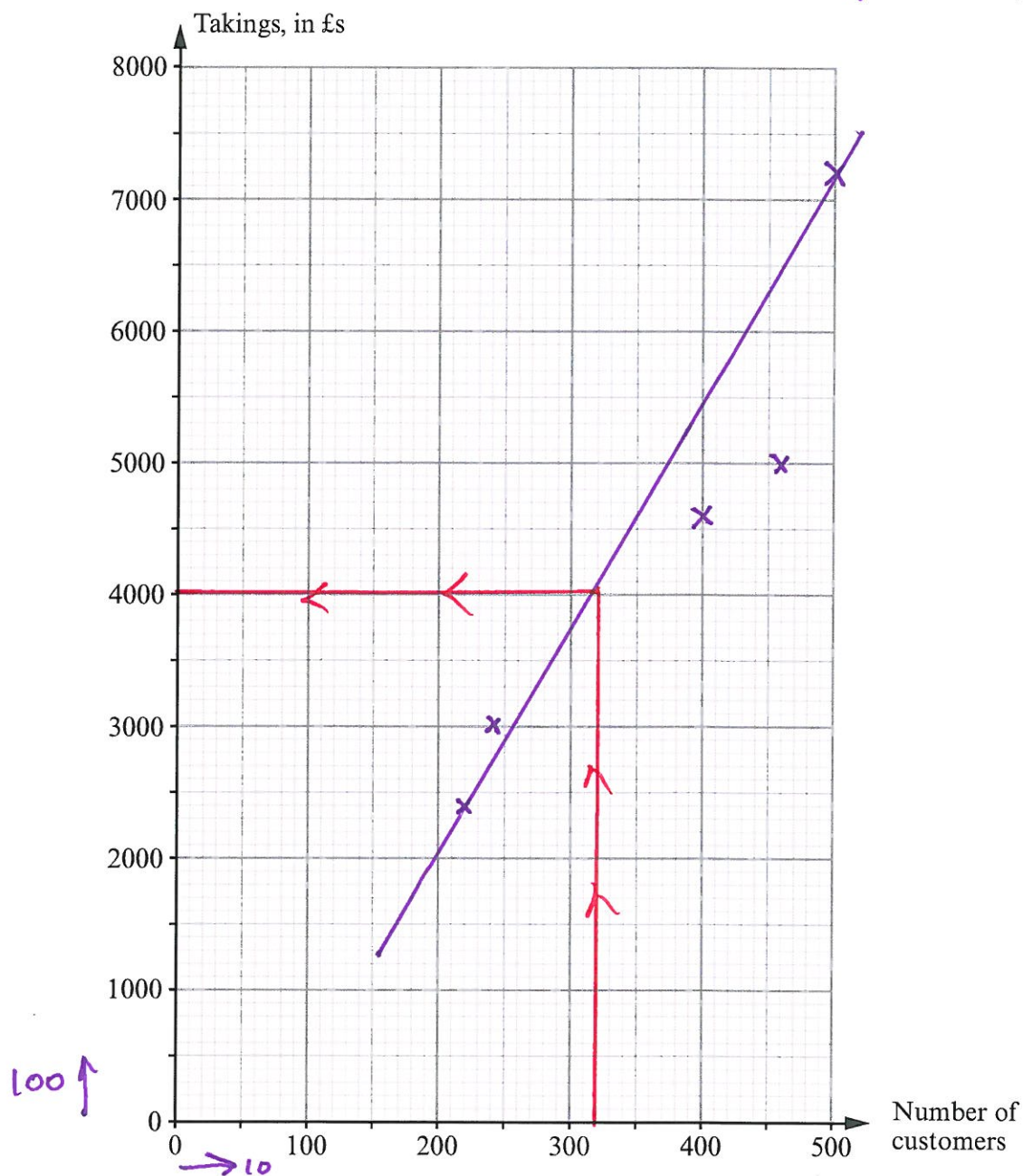
$$11.6$$

15. Every Saturday for 5 weeks, the number of customers entering a shop and the takings of the shop were recorded. The table below shows the results.

Number of customers	500	220	460	400	240
Takings, in £s	7200	2400	5000	4600	3000

- (a) On the graph paper below, draw a scatter diagram of these results.

[2]



- (b) Write down the type of the correlation that is shown by the scatter diagram.

positive

[1]

- (c) Draw, by eye, a line of best fit on your scatter diagram.

[1]

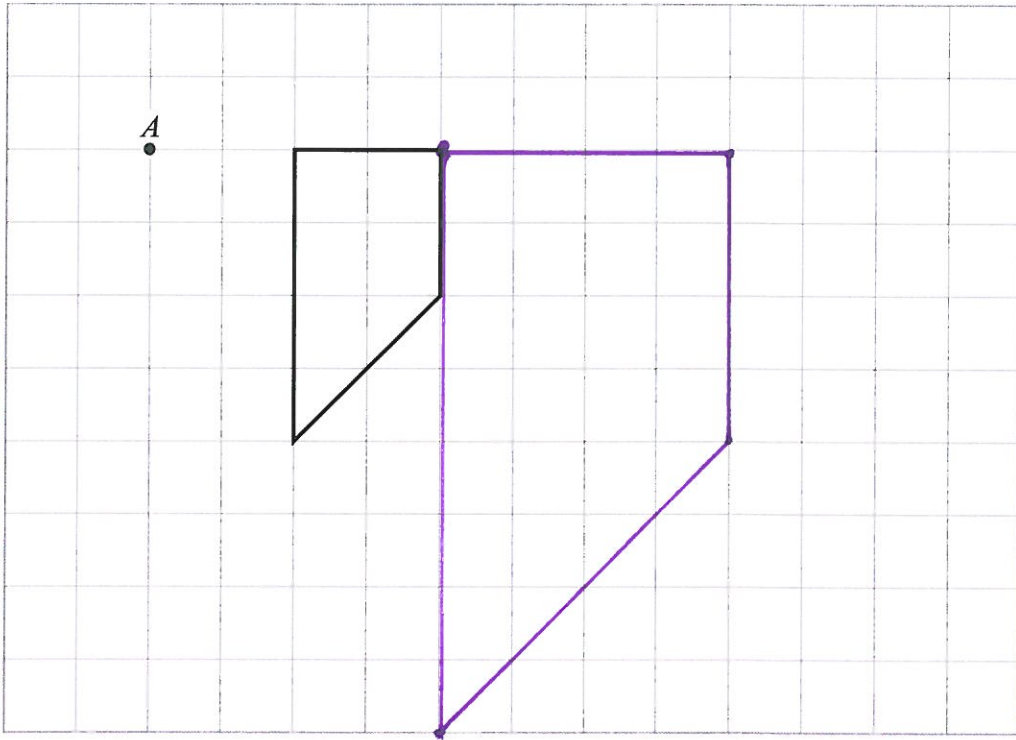
- (d) Estimate the takings for a Saturday when there are 320 customers.

£4000.

[1]

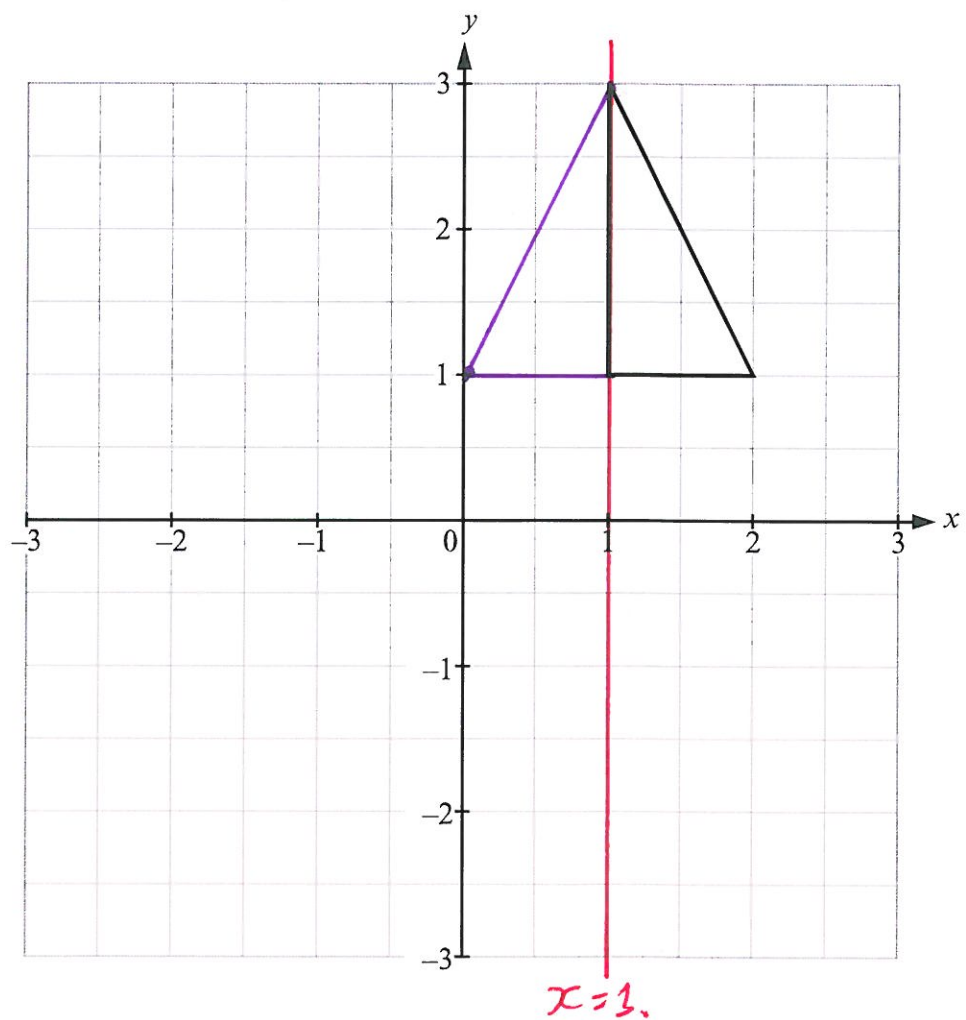
16. (a) Draw an enlargement of the shape shown below using a scale factor of 2. Use the point A as the centre of the enlargement.

[3]



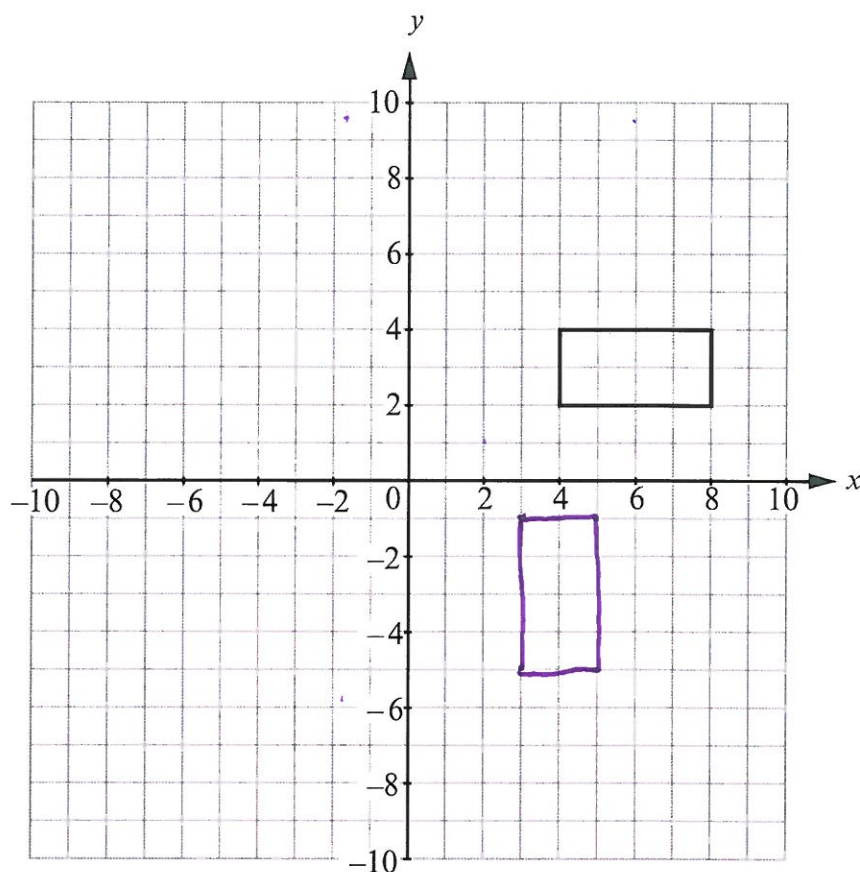
- (b) Draw a reflection of the shape shown below in the line $x = 1$.

[2]



- (c) Rotate the shape shown below through 90° clockwise about the point $(2, 1)$.

[2]



x together
↑

17. The **product** of two numbers is -65 .
The **sum** of these two numbers is 8 .
Find the two numbers.

$$65 \div 5 = 13$$

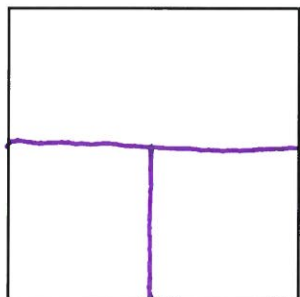
one must be positive & one negative

$$-5 \quad +13$$

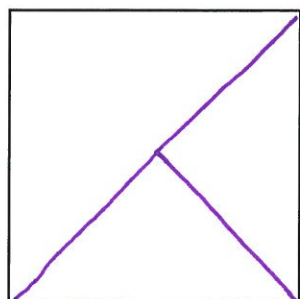
[3]

18. (a) A **square** piece of paper is to be folded exactly in half, then folded exactly in half again. The original square piece of paper can be folded in this way to make a square or an isosceles right-angled triangle. In each case, draw lines on the original square paper shown below, to show where the paper needs to be folded.

- (i) To make a square.



- (ii) To make an isosceles right-angled triangle.

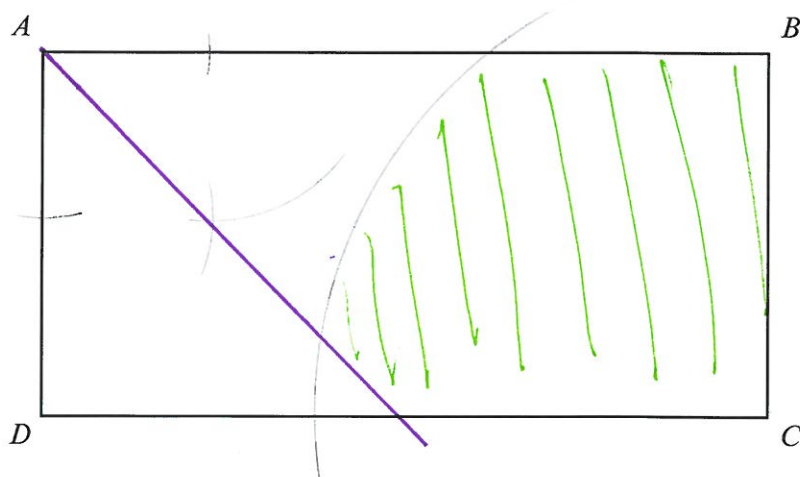


[4]

- (b) Find and shade the region of points within the rectangle $ABCD$ that satisfy **both** of the following conditions.

- The points are nearer the line AB than the line DC .
- They are less than 6 cm from the point C .

[3]



19. (a) Factorise $3x - 6$.

$$3x - 3 \times 2$$

$$3(x - 2)$$

[1]

- (b) Find the n th term of the sequence

$$5, \quad +6 \quad 11, \quad +6 \quad 17, \quad +6 \quad 23, \quad \dots$$

$$6n - 1$$

[2]

- (c) Rearrange the formula $r = 5t - 7$ into the form $t = \dots$

$$r + 7 = 5t$$

$$\frac{r + 7}{5} = t$$

[2]