CCEA GCSE MATHEMATICS

MATHS



EXAM QUESTION PACK

UNIT T5 PAPER 2 (CALCULATOR) FOUNDATION TIER GMT52 PAPERS

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Rewarding Learning

Centre Number

Candidate Number

General Certificate of Secondary Education
January 2016

Mathematics

Unit T5 Paper 2
(With calculator)
Foundation Tier



GMT52

[GMT52]

WEDNESDAY 13 JANUARY, 10.45 am–11.45 am

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
You must answer the questions in the spaces provided.
Do not write outside the boxed area on each page, on blank pages or tracing paper.
Complete in blue or black ink only. **Do not write with a gel pen.**
Answer **all sixteen** questions.
All working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.
You **may** use a calculator for this paper.

INFORMATION FOR CANDIDATES

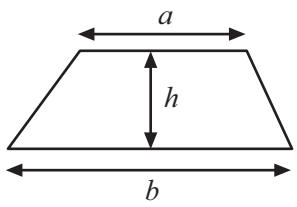
The total mark for this paper is 50.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
Functional Elements will be assessed in this paper.
Quality of written communication will be assessed in Question **8**.
You should have a calculator, ruler, compasses and a protractor.
The Formula Sheet is on page 2.

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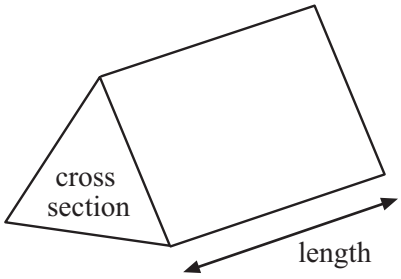
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Formula Sheet

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



Volume of prism = area of cross section × length



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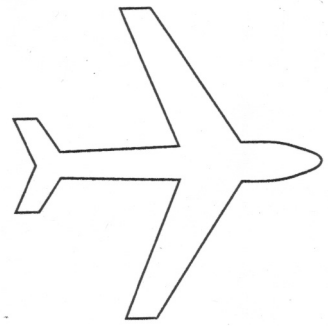
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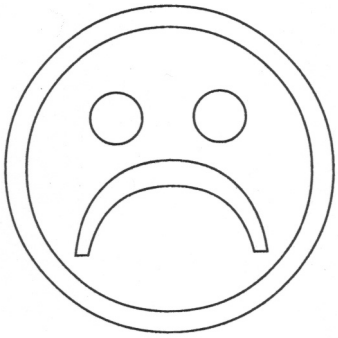
(Questions start overleaf)

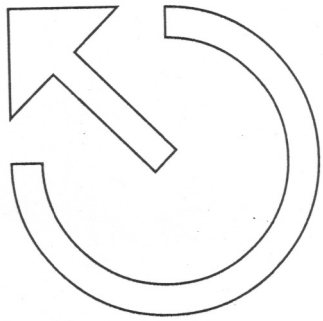
[Turn over

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1 For each of the shapes below draw a line of symmetry.







[3]

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2 An imperial unit for measuring the speed of a car is miles per hour.

Write down an imperial unit for measuring

(a) the length of a pencil,

Answer _____ [1]

(b) the weight of an apple.

Answer _____ [1]

3 Here are some number cards.

3	1	4	2	1	4	1	2	1	4

The cards are turned over.

A card is taken at random.

(a) Which number is most likely to be taken?

Answer _____ [1]

(b) Which number is least likely to be taken?

Answer _____ [1]

(c) An even number is more likely to be taken than an odd number.

Is this statement True or False?

Answer _____ [1]

[Turn over

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4 The total cost (£) of a car service is given by the formula

Total cost = cost of parts + hours worked × 25

(a) Don pays £240 for parts and it takes five hours to service his car.

Work out the total cost of his car service.

Answer £ _____ [2]

(b) Olive's car does not need any new parts but it takes $3\frac{1}{2}$ hours to service it.

What is the total cost of Olive's car service?

Answer £ _____ [1]

(c) Explain what the 25 in the formula stands for.

Answer _____ [1]

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5 Gary buys a pack of three pens for £4.97

Calculate the cost of each pen.

Give your answer to the nearest penny.

Answer £ _____ [3]

6 The weight of a boxer is 240 lbs.

What is this weight in kilograms?

Answer _____ kg [2]

7 What is the name for a three-sided shape which has rotational symmetry of order 3?

Answer _____ [1]

[Turn over

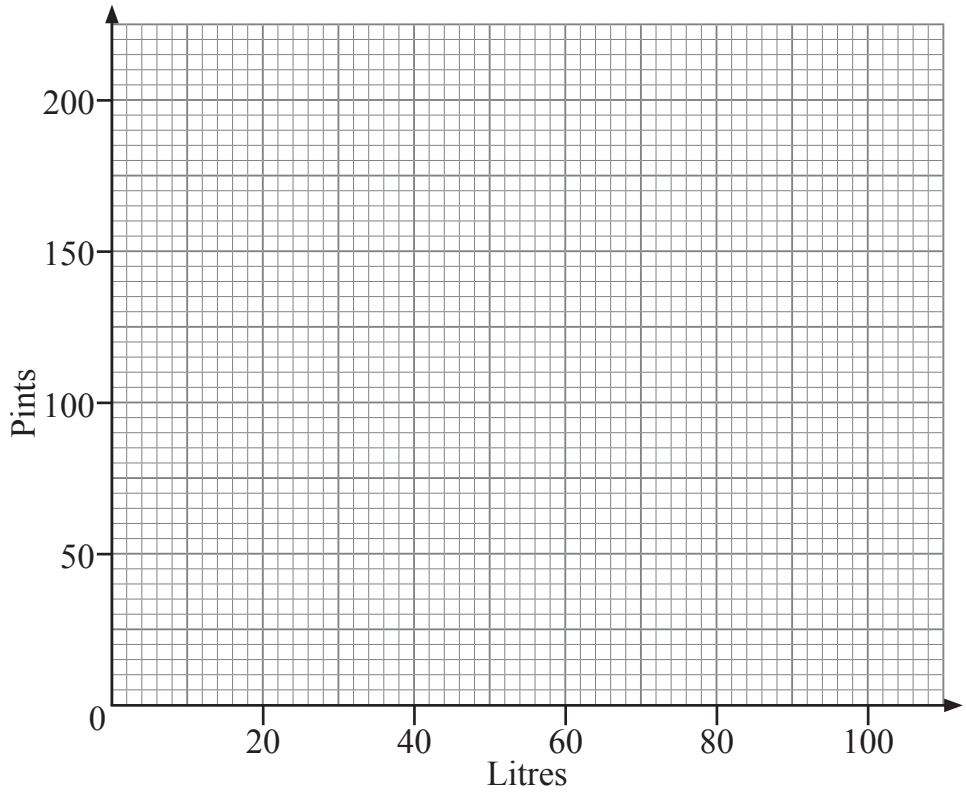
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Quality of written communication will be assessed in this question.

8 Milk is sold in both litres and pints.

Litres	20	60	100
Pints	35	105	175

(a) Use the values in the table to draw the conversion graph on the grid below.



[3]

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(b) Explain how to use your graph to convert 240 pints to litres, and write down the answer.

Answer _____ [2]

(c) Alice bought 75 litres of milk and Barbara bought 120 pints of milk.

Who bought more milk? Give a reason for your answer.

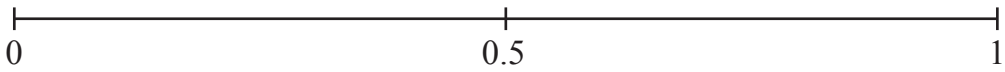
Answer _____ because _____

_____ [2]

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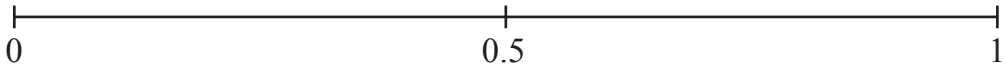
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9 **(a)** On the probability scale mark with a cross (✗) the probability that it will snow in Belfast in July.



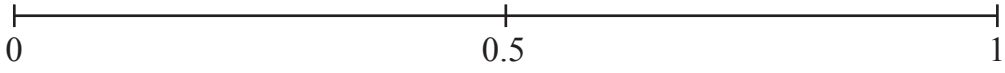
[1]

(b) On the probability scale mark with a cross (✗) the probability that it will rain in Belfast next year.



[1]

(c) On the probability scale mark with a cross (✗) the probability that you will get a tail when you toss a fair coin.



[1]

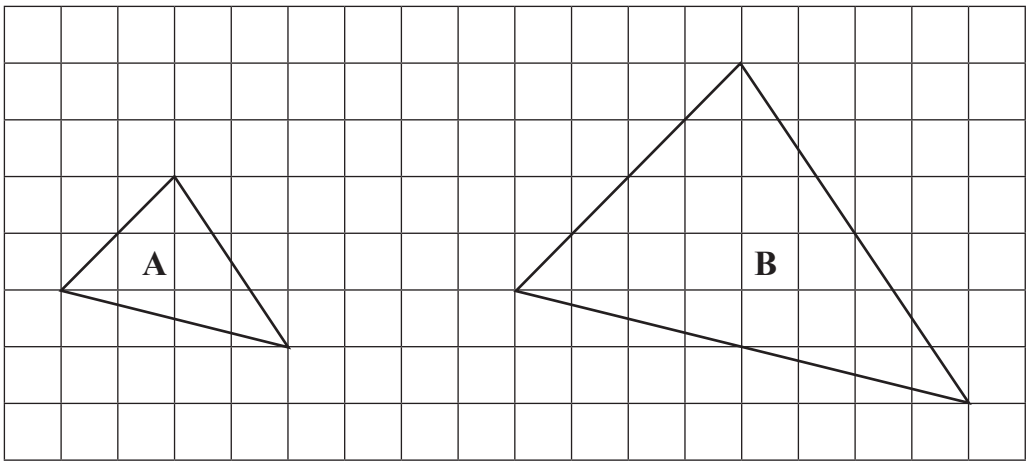
(d) The weather forecaster says that there is a 70% chance of rain tomorrow.

What is the probability that it will not rain tomorrow?

Answer _____ [1]

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10 Triangle A is enlarged to give triangle B.



(a) What is the scale factor of the enlargement?

Answer _____ [1]

(b) How many times bigger is the area of triangle B than the area of triangle A?

Answer _____ [2]

[Turn over

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11 Rosemary pays 27 euros for a bottle of perfume.

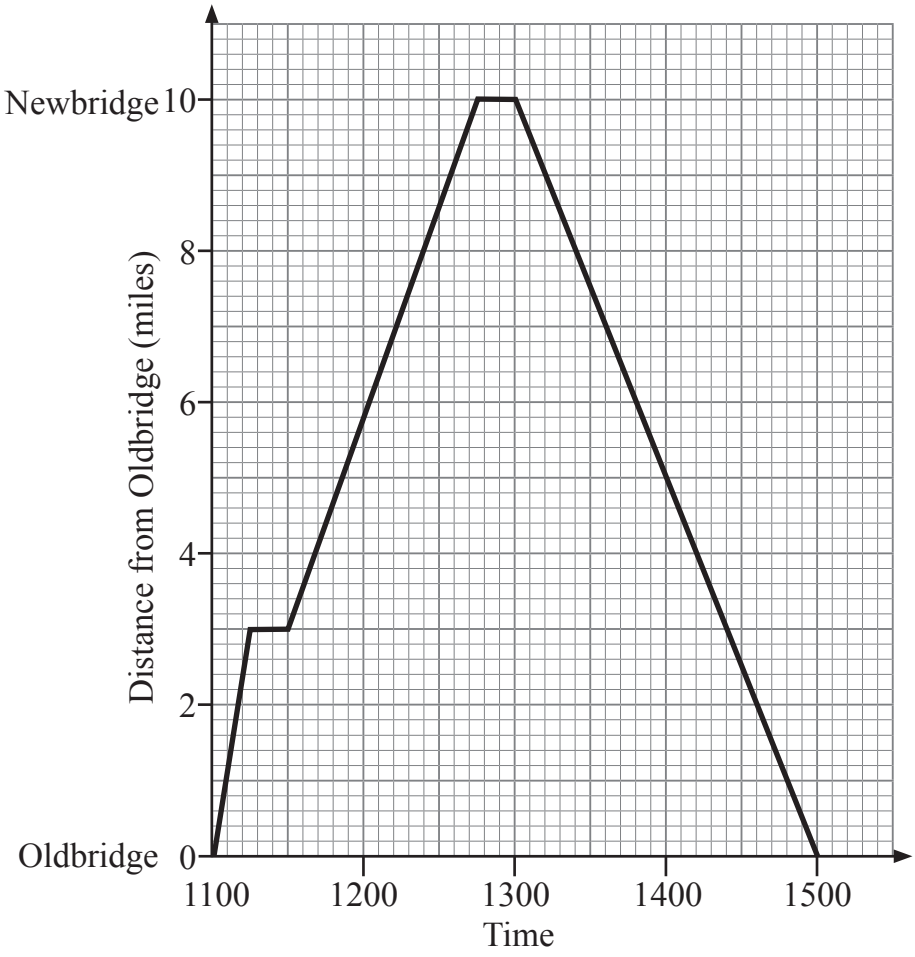
How much is this in pounds (£)?

£1 = €1.20

Answer £ _____ [2]

12 Harry goes for a run from Oldbridge to Newbridge and back.

His journey is shown on the graph below.



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(a) What is Harry's average speed on the return journey from Newbridge to Oldbridge?

Answer _____ mph [2]

(b) Between which times is Harry running at his fastest average speed?

Answer _____ [1]

(c) Give a possible reason for the horizontal lines in the graph.

Answer _____ [1]

[Turn over

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13 A bag contains only red, blue, yellow and white counters.

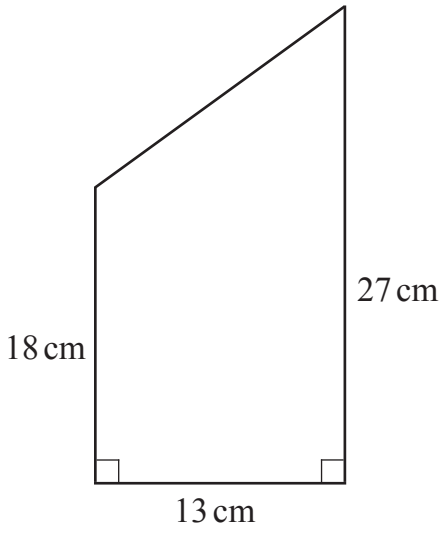
The table shows the probability of taking some of these colours from the bag at random.

Colour	red	blue	yellow	white
Probability	0.2	0.35		0.3

Work out the probability of taking a yellow counter from the bag.

Answer _____ [2]

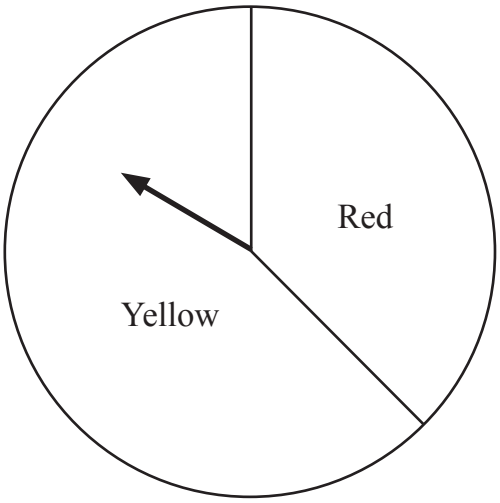
14 Find the area of this trapezium.



Answer _____ cm^2 [2]

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15 A spinner has a red sector and a yellow sector as shown.



The arrow is spun 1000 times.

The table shows the relative frequency of the arrow landing on red after different numbers of spins.

Number of spins	Relative frequency of red
50	0.44
100	0.37
200	0.34
500	0.31
1000	0.32

In the first 200 spins, how many times had the arrow landed on red?

Answer _____ [2]

[Turn over

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16 **(a)** Complete the table for $y = 2x^2 - 4x - 5$

x	–2	–1	0	1	2	3	4
y		1	–5	–7		1	

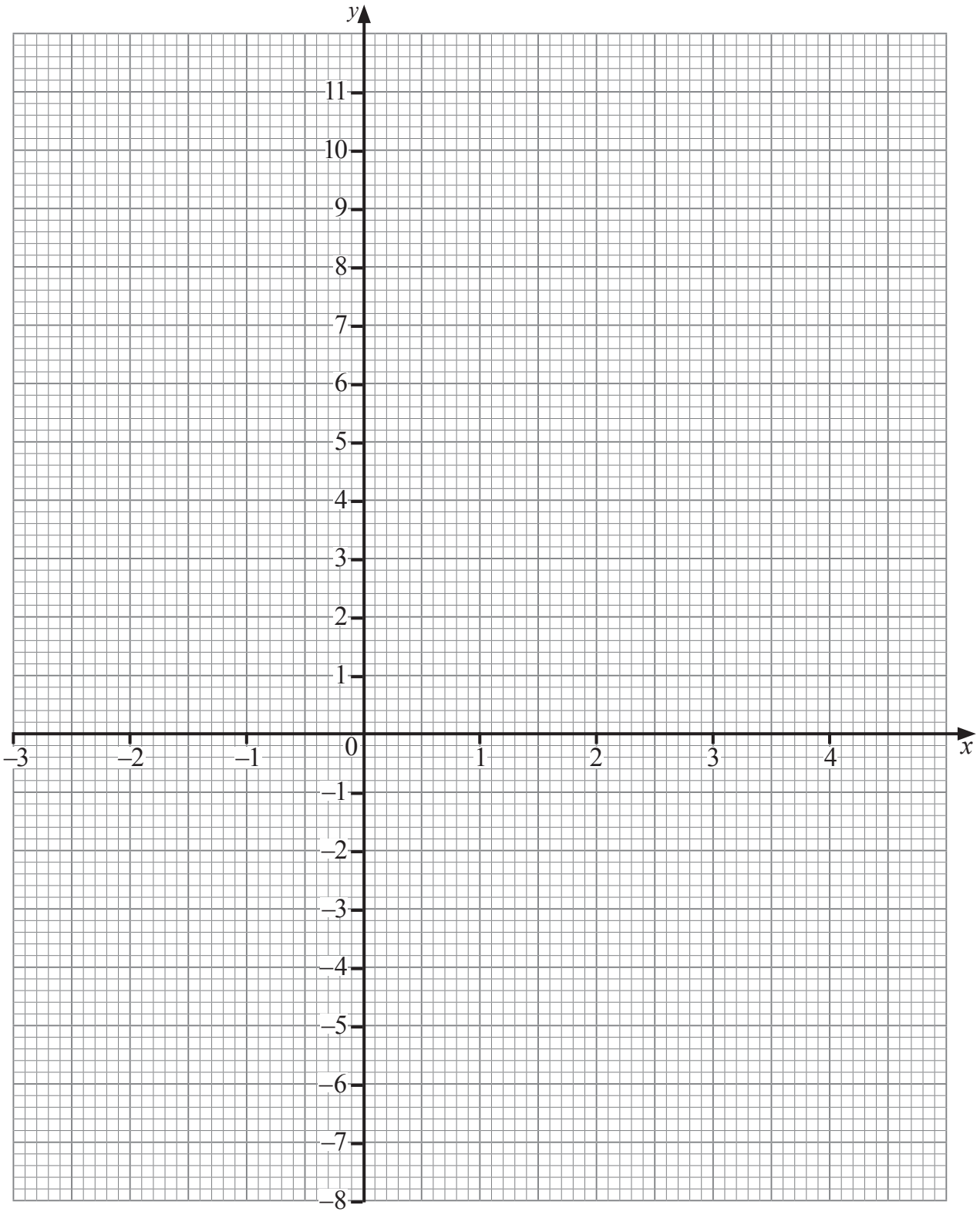
[2]

(b) Draw the graph of $y = 2x^2 - 4x - 5$ for $x = -2$ to $x = 4$ on the opposite page. [2]

(c) Draw the line $y = -2$ and find the x values of the points of intersection.

Answer _____ [2]

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For Examiner's use only	
Question Number	**Marks**
1	
2	
3	
4	
5	
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10	
11	
12	
13	
14	
15	
16	
Total Marks	

Examiner Number

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Rewarding Learning

General Certificate of Secondary Education
January 2016

Mathematics

Unit T5 Paper 2
(With calculator)
Foundation Tier

[GMT52]

WEDNESDAY 13 JANUARY

10.45 am–11.45 am

MARK SCHEME

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GCSE MATHEMATICS

Introduction

The mark scheme normally provides the most popular solution to each question. Other solutions given by candidates are evaluated and credit given as appropriate; these alternative methods are not usually illustrated in the published mark scheme.

The solution to a question gains marks for correct method and marks for accurate working based on this method. The marks awarded for each question are shown in the right hand column and they are prefixed by the letters **M**, **A** and **MA** as appropriate. The key to the mark scheme is given below:

M indicates marks for correct method.
A indicates marks for accurate working, whether in calculation, reading from tables, graphs or answers. Accuracy marks may depend on preceding **M** (method) marks, hence **M**0 **A**1 cannot be awarded i.e. where the method is not correct no marks can be given.
MA indicates marks for combined method and accurate working.
C indicates marks for quality of written communication.

A later part of a question may require a candidate to use an answer obtained from an earlier part of the same question. A candidate who gets the wrong answer to the earlier part and goes on to the later part is naturally unaware that the wrong data is being used and is actually undertaking the solution of a parallel problem from the point at which the error occurred. If such a candidate continues to apply correct method, then the candidate's individual working must be **followed through** from the error. If no further errors are made, then the candidate is penalised only for the initial error. Solutions containing two or more working or transcription errors are treated in the same way. This process is usually referred to as "follow-through marking" and allows a candidate to gain credit for that part of a solution which follows a working or transcription error.

It should be noted that where an error trivialises a question, or changes the nature of the skills being tested, then as a general rule, it would be the case that not more than half the marks for that question or part of that question would be awarded; in some cases the error may be such that no marks would be awarded.

Positive marking

It is our intention to reward candidates for any demonstration of relevant knowledge, skills or understanding. For this reason we adopt a policy of **following through** their answers, that is, having penalised a candidate for an error, we mark the succeeding parts of the question using the candidate's value or answers and award marks accordingly.

Some common examples of this occur in the following cases:

(a) a numerical error in one entry in a table of values might lead to several answers being incorrect, but these might not be essentially separate errors;

(b) readings taken from candidates' inaccurate graphs may not agree with the answers expected but might be consistent with the graphs drawn.

When the candidate misreads a question in such a way as to make the question easier, only a proportion of the marks will be available (based on the professional judgement of the examiner).

General Marking Advice

(i) If the correct answer is seen in the body of the script and the answer given in the answer line is clearly a transcription error, full marks should be awarded.

(ii) If the answer is missing, but the correct answer is seen in the body of the script, full marks should be awarded.

(iii) If the correct answer is seen in working but a completely different answer is seen in the answer space, then some marks will be awarded depending on the severity of the error.

(iv) Work crossed out but not replaced should be marked.

(v) In general, if two or more methods are offered, mark only the method that leads to the answer on the answer line. If two (or more) answers are offered (with no solution offered on the answer line), mark the poorest answer.

(vi) For methods not provided for in the mark scheme, give as far as possible equivalent marks for equivalent work.

(vii) Where a follow through mark is indicated on the mark scheme for a particular part question, the marker must ensure that you refer back to the answer of the previous part of the question.

(viii) Unless the question asks for an answer to a specific degree of accuracy, always mark at the greatest number of significant figures seen. E.g. the answer in the mark scheme is 4.65 and the candidate then correctly rounds to 4.7 or 5 on the answer line. Allow full marks for 4.65 seen in the working.

(ix) Anything in the mark scheme which is in brackets (...) is not required for the mark to be earned, but if present it must be correct.

(x) For any question, the range of answers given in the mark scheme is inclusive.

Quality of written communication

In GCSE Mathematics, particular questions are identified where candidates must demonstrate the quality of their written communication.

In particular, candidates must:

(i) ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear (i.e. comprehension and meaning is clear by using the correct notation and labelling conventions);

(ii) select and use a form and style of writing appropriate to their purpose and to complex subject matter (i.e. reasoning, explanation or argument is correct and appropriately structured to convey mathematical reasoning); and

(iii) organise information clearly and coherently, using specialist vocabulary where appropriate (i.e. the mathematical methods and processes used are coherently and clearly organised and appropriate mathematical vocabulary used).

This assessment may be through, for example, an explanation of the geometrical properties of a given shape or, for example, through concise mathematical argument in a multi-step problem.

			AVAILABLE MARKS
1	each correct line of symmetry	A1 A1 A1	3
2	**(a)** inch	A1	
	(b) ounce	A1	2
3	**(a)** 1	A1	
	(b) 3	A1	
	(c) False	A1	3
4	**(a)** $240 + 5 \times 25$ 365	MA1 A1	
	(b) 87.50	A1	
	(c) cost of one hour's work or similar	A1	4
5	$4.97 \div 3$ 1.65666666 or 1.65 1.66	M1 A1 A1	3
6	$240 \div 2.2$ $109\ (.\dot{0}\dot{9})$	M1 A1	2
7	Equilateral triangle	A1	1
8	**(a)** correct points, line	A2 A1	
	(b) explanation and answer	C2	
	(c) Alice 75 litres = 131 pints or 120 pints = 69 litres (allow tolerance)	C2	7
9	**(a)** X at or very near to zero	A1	
	(b) X at 1	A1	
	(c) X at 0.5	A1	
	(d) 30% (or equivalent)	A1	4

			AVAILABLE MARKS
10	**(a)** 2	A1	
	(b) 4 (allow [1] for 2^2)	A2	3
11	$27 \div 1.2$	M1	
	22.50	A1	2
12	**(a)** $10 \div 2 = 5$	M1 A1	
	(b) 1100 to 1115	A1	
	(c) Harry stopped for a rest	A1	4
13	$1 - (0.2 + 0.35 + 0.3)$	M1	
	0.15	A1	2
14	$\frac{1}{2}(18 + 27) \times 13$	M1	
	292.5	A1	2
15	0.34×200	M1	
	68	A1	2
16	**(a)** 11, –5, 11	A2	
	(b) correct points	A1	
	smooth curve	A1	
	(c) –0.6 and 2.6 (follow candidate's graph)	A1 A1	6
		Total	**50**

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Rewarding Learning

Centre Number

Candidate Number

General Certificate of Secondary Education
2015

Mathematics

Unit T5 Paper 2
(With calculator)
Foundation Tier



GMT52

[GMT52]

TUESDAY 26 MAY, 3.00pm–4.00pm

TIME

1 hour.

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Answer **all twelve** questions.
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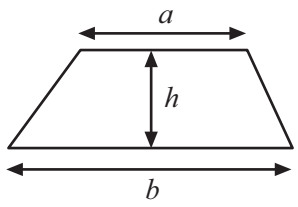
The total mark for this paper is 50.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
Functional Elements will be assessed in this paper.
Quality of written communication will be assessed in Questions **4** and **10**.
You should have a calculator, ruler, compasses and a protractor.
The Formula Sheet is on page 2.

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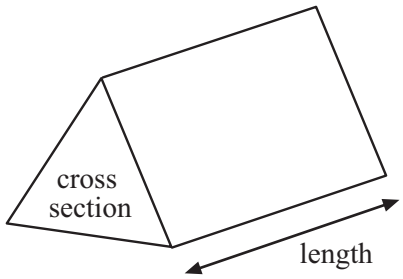
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Formula Sheet

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



Volume of prism = area of cross section × length



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1 A manager wishes to buy new uniforms for his 30 staff.
A shirt costs £8.15 and trousers cost £19.95

(a) **Estimate** the total cost of the uniforms.
Show all steps of your working clearly.

Answer £ _____ [2]

(b) Without any further calculation, decide whether your estimate will be an overestimate or an underestimate of the exact cost.
Explain your reasoning clearly.

_____

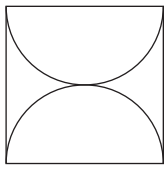
_____ [2]

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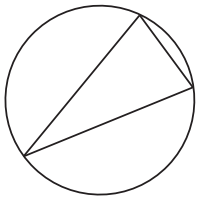
2 **(a)** How many lines of symmetry does each diagram have?

(i)



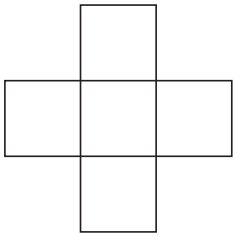
Answer _____

(ii)



Answer _____

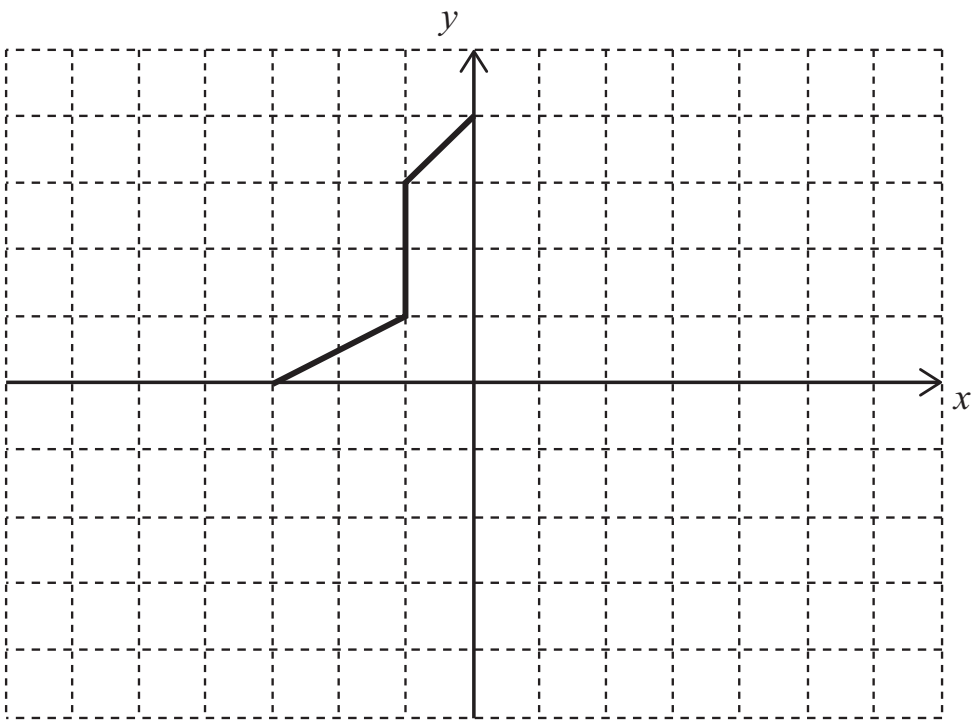
(iii)



Answer _____

[3]

(b) Complete the diagram so that both axes are lines of symmetry.

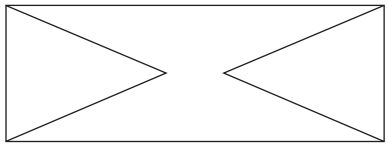


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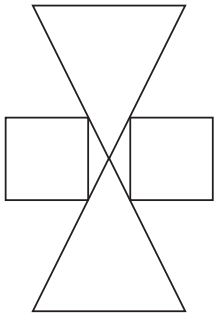
(c) Write down the order of rotational symmetry for each shape below.

(i)



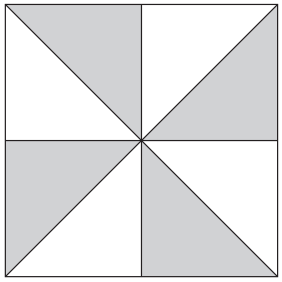
Answer _____ [1]

(ii)



Answer _____ [1]

(iii)

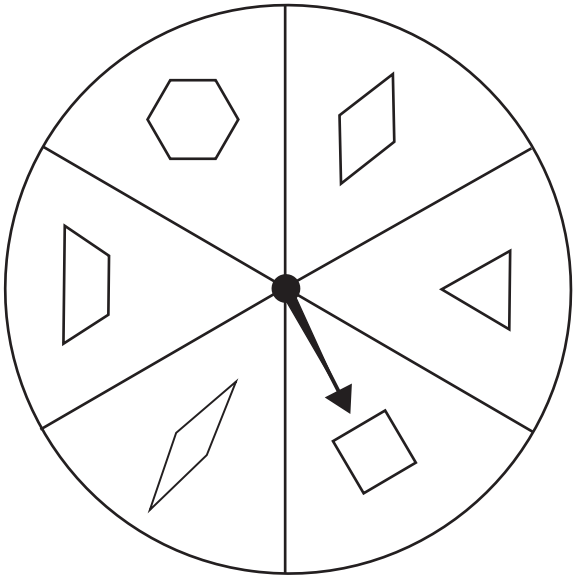


Answer _____ [1]

[Turn over

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3



Sara spins a fair spinner with some shapes drawn on it.

What is the probability of Sara getting a shape which

(a) has 4 sides, Answer _____ [1]

(b) has less than 3 sides, Answer _____ [1]

(c) has less than 4 sides? Answer _____ [1]

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Quality of written communication will be assessed in this question.

4 Len keeps petrol for his lawnmower in a 5 litre can.
Gary has 1 gallon of petrol in another can.
Gary starts to pour his petrol into Len's empty can.
Will Gary be able to pour all his petrol into Len's can?

Use 50 litres = 11 gallons

Show clearly all your working.

[3]

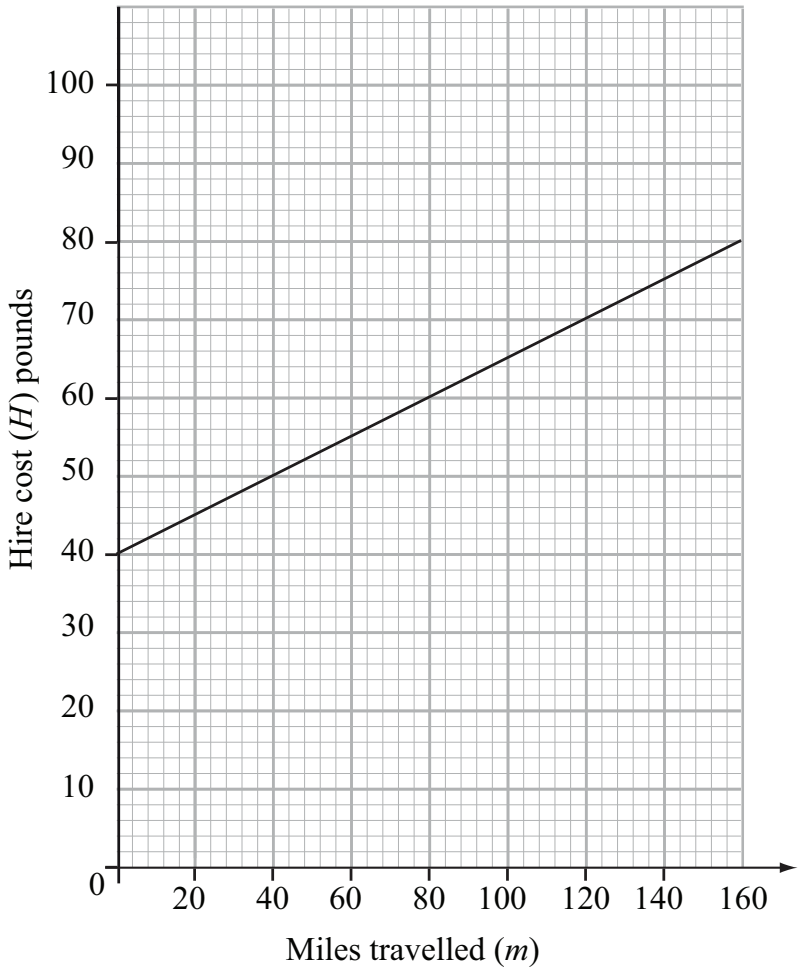
5 Grapes cost £3.25 per kilogram.
Calculate the cost of one pound (1 lb) of grapes.

Answer £ _____ [3]

[Turn over

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16GMT5207

6 Airport Autos is a car hire company.
The graph shows how the hire cost is calculated.



(a) Martha hired a car. The hire cost on return was £52
Use the graph to find how many miles Martha travelled.

Answer _____ miles [1]

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The hire cost (H) is made up of a fixed charge plus a charge for the number of miles travelled (m).

(b) (i) How much is the fixed charge?

Answer £ _____ [1]

(ii) How much is the charge per mile?

Answer _____ [2]

(iii) Hence write down a formula for the hire cost H in terms of the number of miles travelled m.

Answer _____ [2]

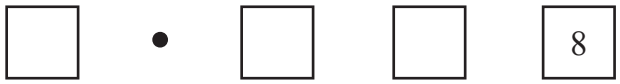
[Turn over

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16GMT5209

7 **(a)** Write 3.55 correct to 1 decimal place.

Answer _____ [1]

(b) Write a digit in each box below so that the number when rounded to 2 decimal places is 4.70



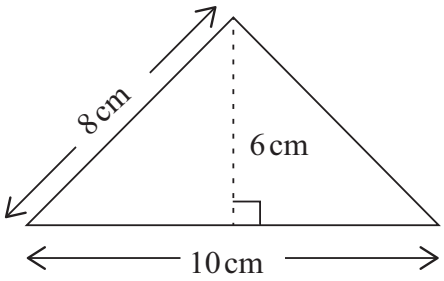
[1]

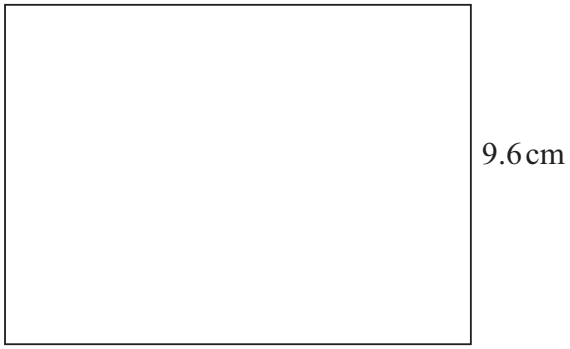
(c) Write down a whole number with no zeros which would give 5600 when rounded to 2 significant figures.

Answer _____ [1]

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8





These diagrams are not drawn to scale.
The area of the rectangle is four times the area of the triangle.
Calculate the length of the rectangle.

Answer _____ cm [4]

[Turn over

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16GMT5211

9 Bobby the builder has nails of five different lengths in a jar.

The probability of a nail being a certain length is given in the table.

Length (mm)	20	24	30	36	44
Probability	0.15		0.2	0.25	0.35

(a) What is the probability of a nail being 24 mm long?

Answer _____ [2]

There are 60 nails in the jar.

(b) How many nails are longer than 30 mm?

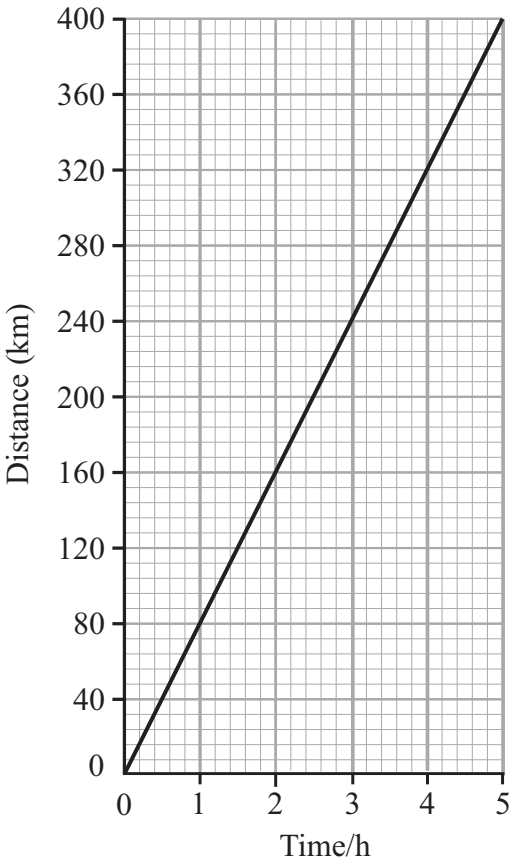
Answer _____ [3]

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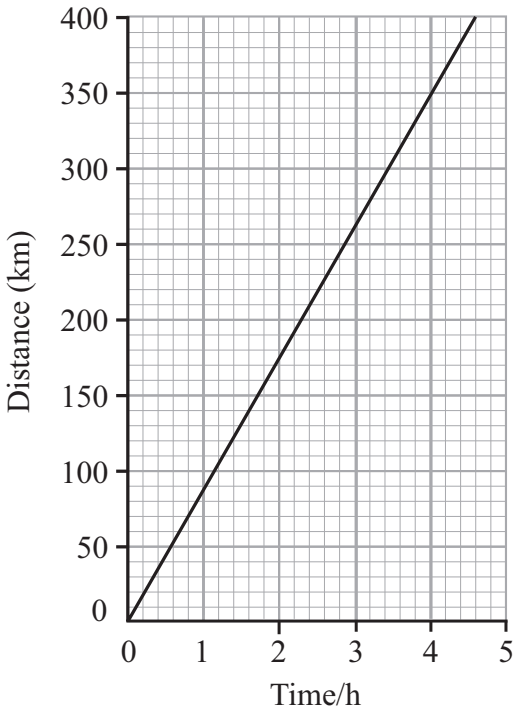
Quality of written communication will be assessed in this question.

10

Train A



Train B



The graphs show how two trains complete a 400 km journey.

Which of the trains A or B has the greater average speed?

Explain your answer clearly.

Train ____ because _____

_____

_____

[3]

[Turn over

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16GMT5213

11 Solve $4n + 3 > 28$

Answer _____ [2]

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16GMT5214

12

Fruit		**Vegetables**	
Apple	45p	Carrots	35p per 100 g
Orange	30p	Peas	75p per 100 g
Banana	25p	Beans	40p per 100 g

A portion is a single piece of fruit or 100g of vegetables.

Fiona eats a total of 5 portions of fruit and vegetables each day.
Fiona has a maximum of £12 a week to spend on fruit and vegetables.
She buys at least two different types of fruit and at least two different types of vegetables.

Show **one** way of buying the fruit and vegetables so that she has enough for a week, using the prices above.

Show all your working clearly.

Answer _____ [5]

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16GMT5215

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Question Number	**Marks**
1	
2	
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10	
11	
12	
Total Marks	

Examiner Number

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Rewarding Learning

General Certificate of Secondary Education
2015

Mathematics

Unit T5 Paper 2
(With calculator)
Foundation Tier

[GMT52]

TUESDAY 26 MAY, 3.00pm–4.00pm

MARK SCHEME

STEMUP.CO.UK

GCSE MATHEMATICS

Introduction

The mark scheme normally provides the most popular solution to each question. Other solutions given by candidates are evaluated and credit given as appropriate; these alternative methods are not usually illustrated in the published mark scheme.

The solution to a question gains marks for correct method and marks for accurate working based on this method. The marks awarded for each question are shown in the right hand column and they are prefixed by the letters **M**, **A** and **MA** as appropriate. The key to the mark scheme is given below:

M indicates marks for correct method.
A indicates marks for accurate working, whether in calculation, reading from tables, graphs or answers. Accuracy marks may depend on preceding **M** (method) marks, hence **M**0 **A**1 cannot be awarded i.e. where the method is not correct no marks can be given.
MA indicates marks for combined method and accurate working.
C indicates marks for quality of written communication.

A later part of a question may require a candidate to use an answer obtained from an earlier part of the same question. A candidate who gets the wrong answer to the earlier part and goes on to the later part is naturally unaware that the wrong data is being used and is actually undertaking the solution of a parallel problem from the point at which the error occurred. If such a candidate continues to apply correct method, then the candidate's individual working must be **followed through** from the error. If no further errors are made, then the candidate is penalised only for the initial error. Solutions containing two or more working or transcription errors are treated in the same way. This process is usually referred to as "follow-through marking" and allows a candidate to gain credit for that part of a solution which follows a working or transcription error.

It should be noted that where an error trivialises a question, or changes the nature of the skills being tested, then as a general rule, it would be the case that not more than half the marks for that question or part of that question would be awarded; in some cases the error may be such that no marks would be awarded.

Positive marking:

It is our intention to regard candidates for any demonstration of relevant knowledge, skills or understanding. For this reason we adopt a policy of **following through** their answers, that is, having penalised a candidate for an error, we mark the succeeding parts of the question using the candidate's value or answers and award marks accordingly.

Some common examples of this occur in the following cases:

(a) a numerical error in one entry in a table of values might lead to several answers being incorrect, but these might not be essentially separate errors;

(b) readings taken from candidates' inaccurate graphs may not agree with the answers expected but might be consistent with the graphs drawn.

When the candidate misreads a question in such a way as to make the question easier, only a proportion of the marks will be available (based on the professional judgement of the examiner).

General Marking Advice

(i) If the correct answer is seen in the body of the script and the answer given in the answer line is clearly a transcription error, full marks should be awarded.

(ii) If the answer is missing, but the correct answer is seen in the body of the script, full marks should be awarded.

(iii) If the correct answer is seen in working but a completely different answer is seen in the answer space, then some marks will be awarded depending on the severity of the error.

(iv) Work crossed out but not replaced should be marked.

(v) In general, if two or more methods are offered, mark only the method that leads to the answer on the answer line. If two (or more) answers are offered (with no solution offered on the answer line), mark the poorest answer.

(vi) For methods not provided for in the mark scheme, give as far as possible equivalent marks for equivalent work.

(vii) Where a follow through mark is indicated on the mark scheme for a particular part question, the marker must ensure that you refer back to the answer of the previous part of the question.

(viii) Unless the question asks for an answer to a specific degree of accuracy, always mark at the greatest number of significant figures seen. E.g. the answer in the mark scheme is 4.65 and the candidate then correctly rounds to 4.7 or 5 on the answer line. Allow full marks for 4.65 seen in the working.

(ix) Anything in the mark scheme which is in brackets (...) is not required for the mark to be earned, but if present it must be correct.

(x) For any question, the range of answers given in the mark scheme is inclusive.

Quality of written communication

In GCSE Mathematics, particular questions are identified where candidates must demonstrate the quality of their written communication.

In particular, candidates must:

(i) ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear (i.e. comprehension and meaning is clear by using the correct notation and labelling conventions);

(ii) select and use a form and style of writing appropriate to their purpose and to complex subject matter (i.e. reasoning, explanation or argument is correct and appropriately structured to convey mathematical reasoning); and

(iii) organise information clearly and coherently, using specialist vocabulary where appropriate (i.e. the mathematical methods and processes used are coherently and clearly organised and appropriate mathematical vocabulary used).

This assessment may be through, for example, an explanation of the geometrical properties of a given shape or, for example, through concise mathematical argument in a multi-step problem.

			AVAILABLE MARKS
1	**(a)** $30 \times 8 + 30 \times 20$ $= 240 + 600$ $= 840$	MA1 A1	
	(b) Underestimate because 30×15 rounded down for shirts and only 30×5 pence rounded up for trousers; so overall effect will be lower than actual cost (or similar explanation)	A2	4
	or		
	(a) $30 \times (8 + 20) = 30 \times 28 = (30 \times 30)$ $= 900$	MA1 A1	
	(b) Overestimate because total of shirt and trousers rounded up; so overall effect will be higher than the actual cost (or similar explanation)	A2	
2	**(a)** **(i)** 2 **(ii)** 1 **(iii)** 4	A1 each	
	(b) [1] for each quadrant	A3	
	(c) **(i)** 2 **(ii)** 2 **(iii)** 4	A1 each	9
3	**(a)** $\frac{4}{6}\left(\frac{2}{3}\right)$ **(b)** 0 **(c)** $\frac{1}{6}$	A1 for each	3
4	5 litres = 1.1 gallons or 1 gallon = 4.54 … litres	C1 units C1 correct value	
	Correct conclusion that Gary will be able to pour it all in	C1	3
5	1 kg = 2.2 lbs	A1	
	$3.25 \div 2.2 = £1.48$ or £1.47	M1, A1	3
6	**(a)** 48	A1	
	(b) **(i)** £40	A1	
	(ii) £5/20 miles = 25p per mile or £0.25	M1 A1 (answer must have appropriate units)	
	(iii) $H = 40 + 0.25m$	A2	6

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			AVAILABLE MARKS
7	**(a)** 3.6	A1	
	(b) 4.698	A1	
	(c) Any correct value, e.g. 5596, 5612, etc.	A1	3
8	Area of $\triangle = \frac{1}{2} \times 6 \times 10 = 30$	M1, A1	
	Area of $\square = 120$	MA1	
	Width $= \frac{120}{9.6} = 12.5$	MA1	4
9	**(a)** $1 - (0.15 + 0.2 + 0.25 + 0.35) = 0.05$	M1, A1	
	(b) $0.6 \times 60 = 36$	A1, M1, A1	5
10	Train B because it has an average speed of 86.96 km/h and train A has an average speed of 80 km/h thus making train B faster	C3	
	or		
	Train A and Train B both complete the same distance of 400 km. Train B completes it in a shorter time than Train A. Therefore Train B has the greater average speed.	C3	3
11	$4n > 25$	MA1	
	$n > \frac{25}{4}\left(6\frac{1}{4}\right)$	MA1	2
12	A1 for pricing 2 different fruits for day, e.g. apple + banana = 70p A1 for pricing 2 different vegetables for day, e.g. carrots + beans = 75p A2 for selecting 5th fruit or vegetable, finding total and ensuring weekly total less than £12, e.g. 70p + 75p + extra banana @ 25p = £1.70 × 7 = £11.90 (Note: there may be several trials before pupil succeeds with all criteria satisfied; variety of possible solutions) A1 for presenting solution of weekly shop, e.g. 7 apples, 14 bananas, 700 g carrots, 700 g of beans	A5	5
		Total	**50**

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Rewarding Learning

Centre Number

Candidate Number

General Certificate of Secondary Education
January 2015

Mathematics

Unit T5 Paper 2
(With calculator)
Foundation Tier



[GMT52]

GMT52

WEDNESDAY 14 JANUARY 10.45am–11.45am

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
You must answer the questions in the spaces provided. Do not write outside the box, around each page, on blank pages or tracing paper.
Complete in blue or black ink only. **Do not write with a gel pen.**
Answer **all seventeen** questions.
Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.
You **may** use a calculator for this paper.

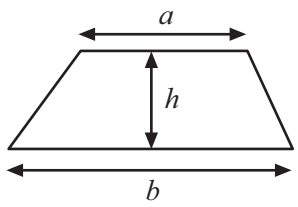
INFORMATION FOR CANDIDATES

The total mark for this paper is 50.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
Functional Elements will be assessed in this paper.
Quality of written communication will be assessed in **Questions 7 and 13**.
You should have a calculator, ruler, compasses and a protractor.
The Formula Sheet is on page 2.

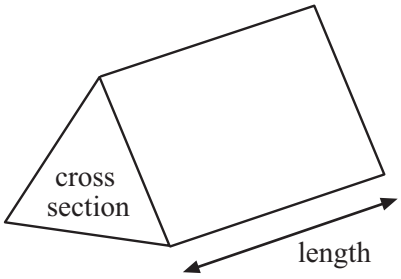
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Formula Sheet

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



Volume of prism = area of cross section × length



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1 **(a)** Add two different capital letters to the right of the letter shown so that all three letters have a horizontal line of symmetry, as indicated by the broken line. [1]

H

(b) Write three different capital letters, which when written vertically downwards will have a vertical line of symmetry, as indicated by the broken line. [2]

2 Complete the following statements.

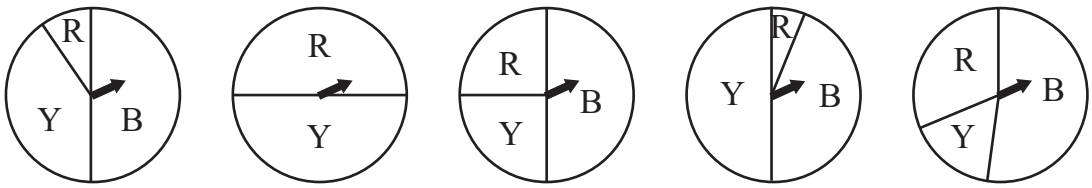
(a) The length of a book can be measured in centimetres (**metric unit**)

or _____ (**imperial unit**). [1]

(b) The capacity of a petrol tank can be given in

_____ (**metric unit**) or gallons (**imperial unit**). [1]

3 There are 5 spinners shown. **R = red** **Y = yellow** **B = blue**



spinner 1 **spinner 2** **spinner 3** **spinner 4** **spinner 5**

(a) The probability that this spinner lands on blue is zero. Which spinner is this?

Answer spinner _____ [1]

(b) Which spinner has the greatest chance of landing on red?

Answer spinner _____ [1]

(c) Write down an approximate value for the probability that spinner 5 lands on yellow.

Answer _____ [1]

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4



Source: The Louvre Museum with its Glass Pyramid, by Hteink.min - http://en.wikipedia.org/wiki/File:Louvre_Pyramid.jpg Licensed under the Creative Commons Attribution-ShareAlike 3.0 License http://creativecommons.org/licenses/by-sa/3.0/

The glass pyramid at the entrance to the Louvre museum in Paris has a base area of $1257\,m^2$ and a height of $21.6\,m$.

The volume of a pyramid = one third of the base area multiplied by the height.

Calculate the volume of this pyramid.

Answer _____ m^3 [2]

[Turn over

5 Sarah orders the following fruit and vegetables online from Maxi Market.

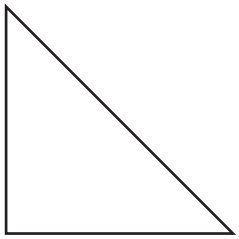
Complete Sarah's bill.

ITEM	PRICE	QUANTITY	COST
Grapes (punnet)	£2.15 or 2 for £4.00	2	
Melon	£1.80 or 2 for £3.20	1	
Red Chillies	65p or 2 for £1.00	1	
Tomatoes (pack)	£1.00	1	
Stir Fry Veg	£1.20 or 2 for £1.80	2	
Potatoes (bag)	£2.25	1	

Total £ _____ [5]

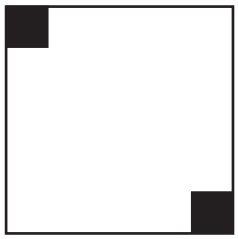
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6 **(a)** Draw a line of symmetry on the shape below.



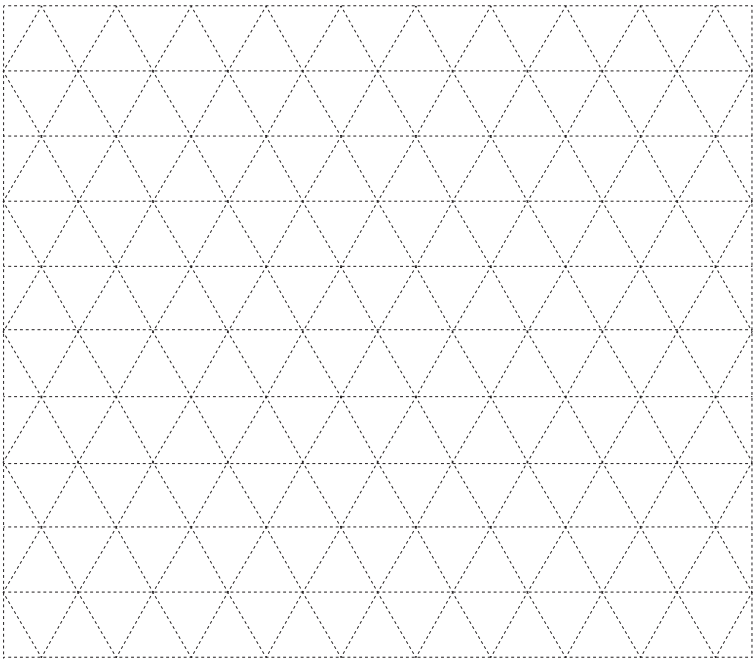
[1]

(b) Draw a line of symmetry on the shape below.



[1]

(c) On the grid below, draw a hexagon which has **only** two lines of symmetry.

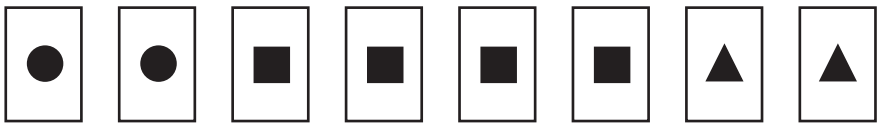


[1]

[Turn over

Quality of written communication will be assessed in this question.

7 The 8 cards shown below are shuffled and placed with the pictures face down on a table.



Megan knows there are two cards with circles and two cards with triangles. She says, "There are an equal number of cards with circles and cards with triangles, so the probability of me taking a card with a triangle is 0.5".

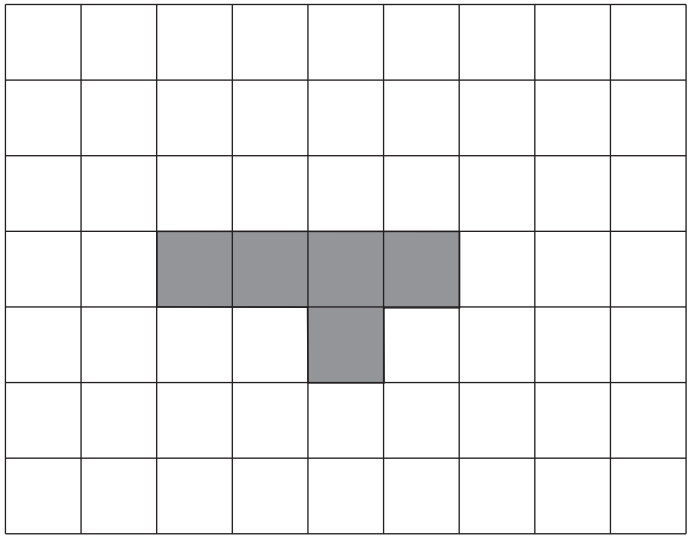
Is Megan correct? Explain your reasoning clearly.

_____ because _____

_____

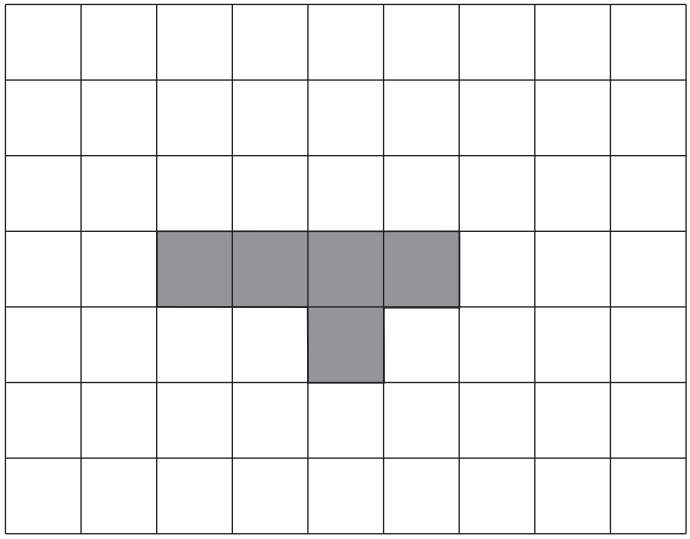
_____ [2]

8 **(a)** Shade one more square so that the shape will have one line of symmetry but no rotational symmetry.



[1]

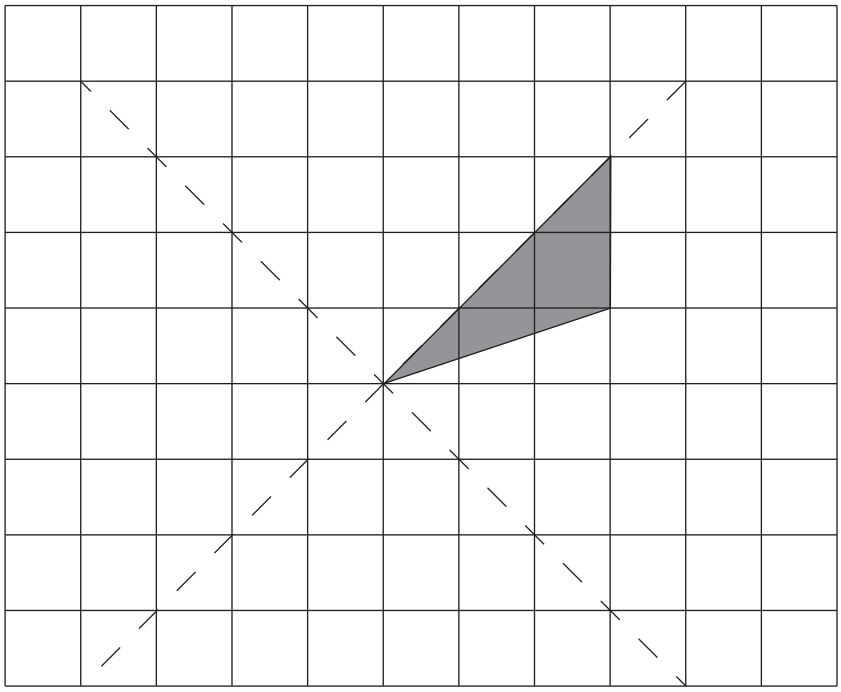
(b) Shade one more square so that the shape will have no lines of symmetry but will have rotational symmetry of order 2.



[1]

[Turn over

9 Part of a shape is drawn on the grid below.
The dotted lines are the lines of symmetry of the complete shape.



(a) Draw and shade the complete shape. [2]

(b) What is the order of rotational symmetry of the complete shape?

Answer _____ [1]

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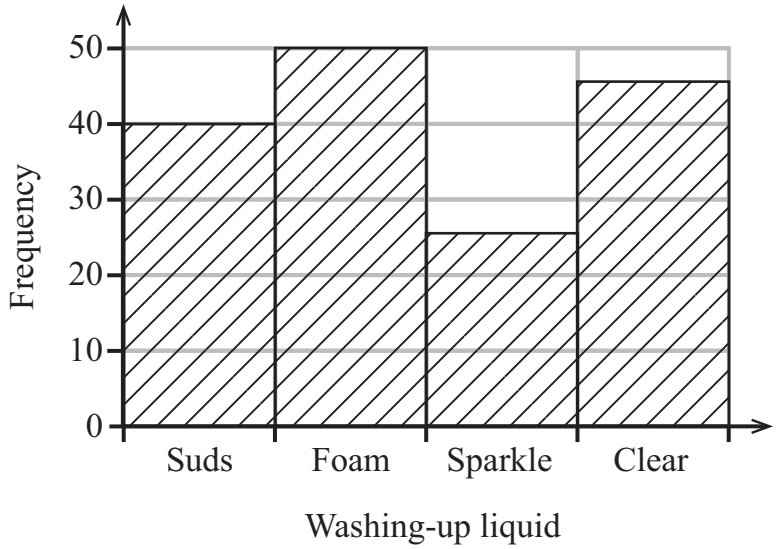
10 Given that $a = 5, \quad b = \frac{1}{4}, \quad c = 3$

evaluate

$$a - 8b - 2c$$

Answer _____ [2]

11 A survey was carried out in a supermarket to find which washing-up liquid people buy.



A customer is chosen at random. What is the probability that they do not buy Foam?

Answer _____ [2]

[Turn over

12 Philip rents a holiday home in Florida in May.
It costs him £680
Dave rents the same home in August for $1400
Given £1 = $1.52 how much **more** does Dave pay in £ for the holiday home?

Answer £ _____ [4]

Quality of written communication will be assessed in this question.

13 A plane flies between two cities.
The plane leaves London at 0850, flies to Glasgow and returns to London arriving at 1305
The time spent in Glasgow is 45 minutes.
The second flight is 10 minutes longer than the first flight.
What is the arrival time in Glasgow of the first flight?
Show each stage of your working clearly.

Answer _____ [4]

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14 Electricity readings from a bill are shown below.

Previous	Present
93449	94969

(a) Calculate the number of units used.

Answer _____ [1]

(b) The cost of each unit is £0.1455
VAT is charged at 5%
Calculate the total electricity bill.

Answer £ _____ [3]

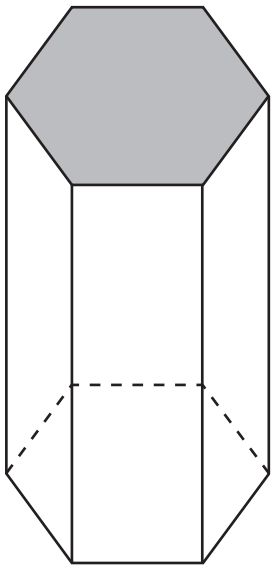
15 The probability that a pupil in Meadowcroft School wears glasses is 0.15
Seventy-two pupils in the school wear glasses.
How many pupils are in Meadowcroft School?

Answer _____ [2]

[Turn over

STEMUP.CO.UK

16 A pillar is in the shape of a hexagonal prism as shown below.



The area of the shaded cross section is 960 cm^2
The height of the pillar is 1.2 m.
Calculate the volume of the pillar.

Answer _____ [3]

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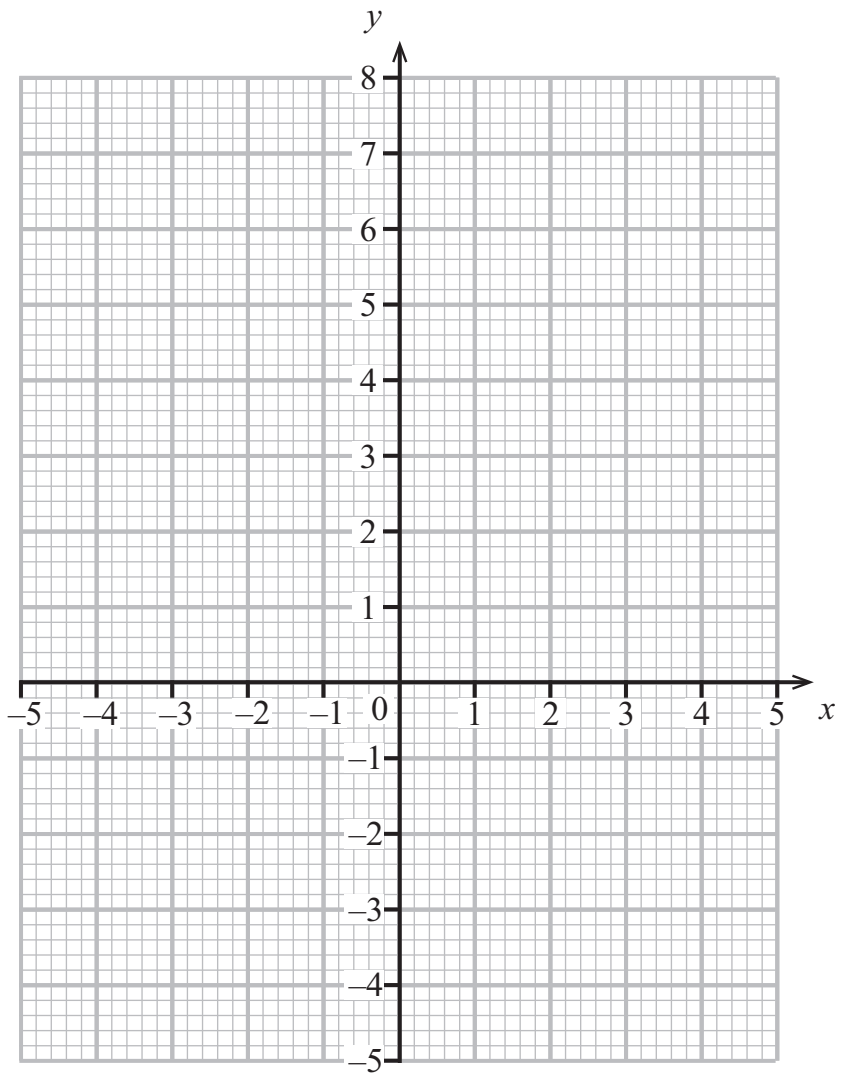
17 Part of the table for the graph of $y = x^2 - 2x - 3$ is shown below.

(a) Fill in the blanks in the table.

x	–2	–1	0	1	2	3	4
y	5	0			–3	0	5

[2]

(b) Use the values from the table to draw the graph.



[2]

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Question Number	**Marks**
1	
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17	
Total Marks	

Examiner Number

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Rewarding Learning

General Certificate of Secondary Education
January 2015

Mathematics

Unit T5 Paper 2
(With calculator)
Foundation Tier

[GMT52]

WEDNESDAY 14 JANUARY

10.45 am–11.45 am

MARK SCHEME

STEMUP.CO.UK

Introduction

The mark scheme normally provides the most popular solution to each question. Other solutions given by candidates are evaluated and credit given as appropriate; these alternative methods are not usually illustrated in the published mark scheme.

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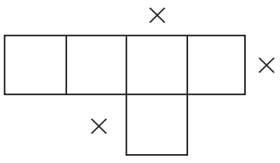
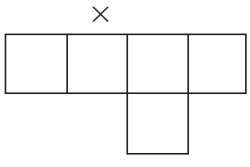
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This assessment may be through, for example, an explanation of the geometrical properties of a given shape or, for example, through concise mathematical argument in a multi-step problem.

			AVAILABLE MARKS
1	**(a)** Any 2 letters from B, C, D, E, I, K, O, X	A1	
	(b) Any 3 letters from A H I M O T U V W X Y (2 letters A1)	A2	3
2	**(a)** inches	A1	
	(b) litres	A1	2
3	**(a)** Spinner 2	A1	
	(b) Spinner 2	A1	
	(c) $\frac{1}{6}$	A1	3
4	$\frac{1257}{3} \times 21.6 = 9050.4$	M1 A1	2
5	£4.00 + £1.80 + £0.65 + £1.00 + £1.80 + £2.25	MA4	
	= £11.50	A1	5
6	**(a)** Line correctly drawn	A1	
	(b) Line correctly drawn	A1	
	(c) Suitable hexagon drawn	A1	3
7	No because although there are an equal number of circles and triangles, both of them still have less chance than the squares which have a probability of $\frac{1}{2}$ (or no; the probability of choosing a triangle is 0.25 as there are only 2 out of a total of 8) (or equivalent)	C2	2
8	**(a)** correct square shaded	A1	
	three possible answers as shown 		
	(b) correct square shaded	A1	2
	one possible answer as shown 		

			AVAILABLE MARKS
9	**(a)** Use of 1st line of symmetry Use of 2nd line of symmetry	A1 A1	
	(b) 2	A1	3
10	$5 - 2 - 6 = -3$	MA1 A1	2
11	Total of 160 or 162 $\frac{110}{160}$ (or $\frac{11}{16}$) or $\frac{112}{162}$ (or $\frac{56}{81}$)	MA1 MA1	2
12	$1400 \div 1.52 = £921.05$ $921.05 - 680 = £241.05$	M1 A1 M1 A1	4
13	Total journey = $4\frac{1}{4}$ hours $255 - 45 = 210$ minutes for flights $105 \pm 5 = 100$ and 110 (10 min. difference) 0850 + 100 minutes = 1030	C1 C1 C1 C1	4
14	**(a)** 1520 units	MA1	
	(b) $1520 \times 0.1455 = £221.16$ 5% = £11.05(8) Total bill = £232.21(8)	MA1 MA1 MA1	4
15	72/0.15 or $\frac{72}{15} \times 100$ or 4.8×100 or $72 \times \frac{1}{0.15}$ or $72 \times 6\frac{2}{3}$ 480	M1 A1	2
16	960×120 **or** 0.096×1.2 $115\,200\,cm^3$ $0.1152\,m^3$ (an attempt to multiply 960 by 1.2 gains first mark only and no units mark)	M1 A1 A1 units	3
17	**(a)** –3 and –4	A1 A1	
	(b) plot all points correctly and draw a smooth curve	A1 A1	4
		Total	**50**

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Rewarding Learning

Centre Number

Candidate Number

General Certificate of Secondary Education
January 2014

Mathematics

Unit T5 Paper 2
(With calculator)
Foundation Tier



[GMT52]

GMT52

WEDNESDAY 15 JANUARY 10.45am–11.45am

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
You must answer the questions in the spaces provided. Do not write outside the box, around each page, on blank pages or tracing paper.
Complete in blue or black ink only. **Do not write with a gel pen.**
Answer **all thirteen** questions.
Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.
You **may** use a calculator for this paper.

INFORMATION FOR CANDIDATES

The total mark for this paper is 50.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
Functional Elements will be assessed in this paper.
Quality of written communication will be assessed in **questions 2 and 3**.
You should have a calculator, ruler, compasses and a protractor.
The Formula Sheet is on page 2.

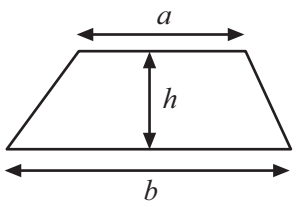
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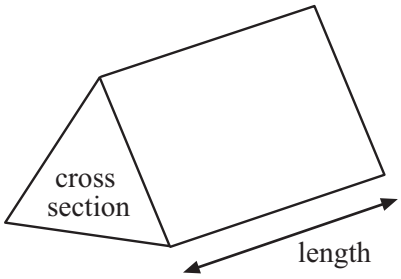
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Formula Sheet

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

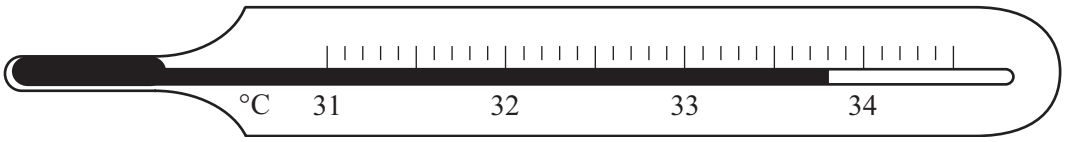


Volume of prism = area of cross section × length



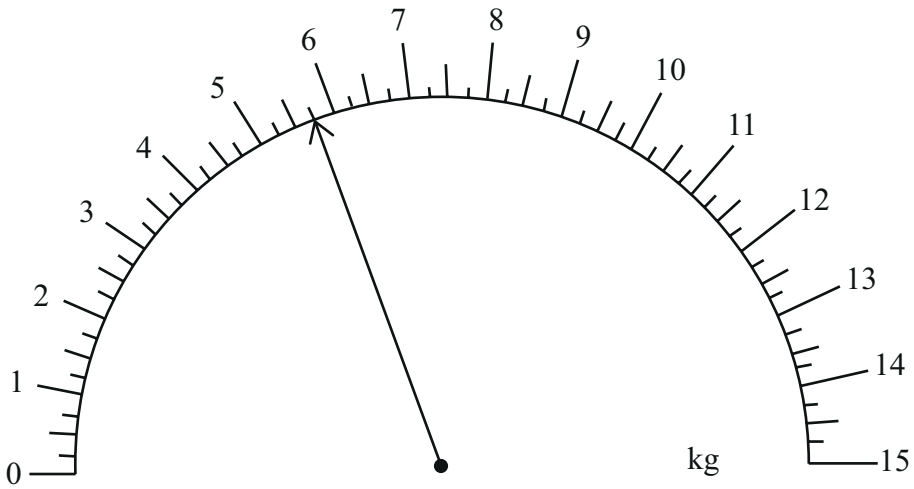
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1 **(a)** Write down the temperature shown on the thermometer.



Answer _____ ° C [1]

(b) **(i)** Write down the weight shown by the arrow below.



Answer _____ kg [1]

(ii) An extra 3.5 kg is added.
Draw an arrow to show the **total** weight now on the scale. [2]

Examiner Only	
Marks	Remark
Total Question 1	

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16GMT5203

Quality of written communication will be assessed in this question.

Examiner Only	
Marks	Remark

2 Jean and Rose each have a bag of sweets.
Jean has equal numbers of toffee, mint and fruit sweets.
Rose has twice as many mint sweets as fruit sweets but she has no toffee sweets.

They each take one sweet at random from their own bag.

(a) Who is more likely to take a mint sweet? **Explain your answer clearly.**

_____ because _____

_____ [2]

(b) Who is more likely to take a fruit sweet? **Explain your answer clearly.**

_____ because _____

_____ [2]

Total Question 2	

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Quality of written communication will be assessed in this question.

Examiner Only	
Marks	Remark

3 Jill has a part-time job in the petrol station.
The pay is £7 per hour.
She earns time and a half on Saturday and double time on Sunday.
Last week she worked 6 hours on Monday, 6 hours on Saturday and 4 hours on Sunday.
How much did she earn in total?
Show your work clearly.

Answer £ _____ [5]

Total Question 3

[Turn over

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4 Every car salesperson with NewAutos earns a basic monthly salary of £1800
In addition they earn a bonus of £75 for every car that they sell in the month.

Examiner Only	
Marks	Remark

Total monthly salary = £1800 + Number of cars sold × Bonus per car sold

(a) Eileen is a car salesperson with NewAutos.
She sold 15 cars in April.
Work out her total monthly salary for April.

Answer £ _____ [2]

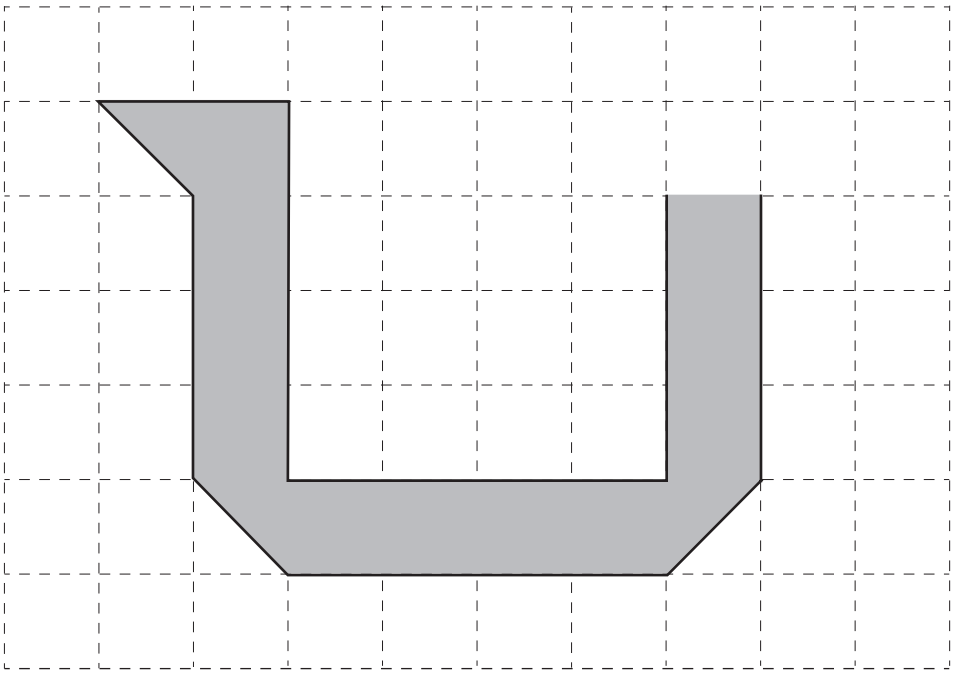
(b) Jim is another car salesperson with NewAutos.
In May his total monthly salary was £3525
Work out how many cars Jim sold in May.

Answer _____ cars [2]

Total Question 4	

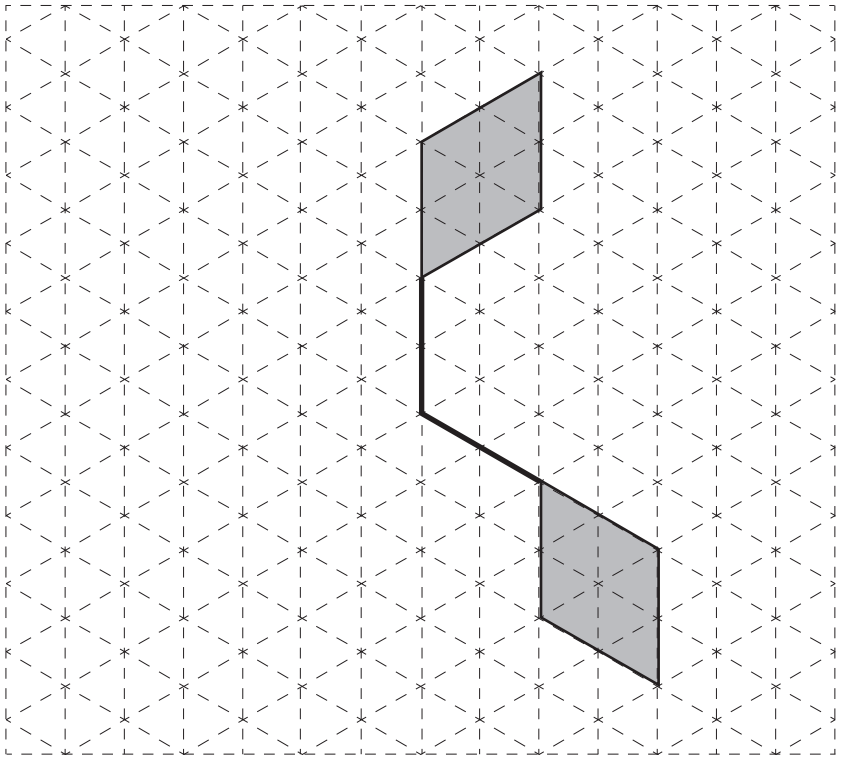
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5 **(a)** Shade one square and one triangle in the diagram so that the complete shaded shape has one line of symmetry.



[2]

(b) Complete the shape **below** so that the completed shape has rotational symmetry of order 3.



[2]

Examiner Only	
Marks	Remark
Total Question 5	

[Turn over

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Examiner Only	
Marks	Remark

6 Mary has 63 square tiles and she wants to arrange them all to make a rectangle.

Write down the length and width of two **different** rectangles that she could make.

Answer 1st rectangle length _____ , width _____ [1]

2nd rectangle length _____ , width _____ [1]

Total Question 6

7 700 people arrive at a bus station and have to be transferred to a local airport.

The airport buses can carry a maximum of 48 passengers.

(a) How many buses are filled?

Answer _____ buses [1]

(b) Calculate the number of people who have to travel in the last bus to ensure all 700 people reach the airport.

Answer _____ people [1]

Total Question 7

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Examiner Only	
Marks	Remark

8 Bradley was cycling at an average speed of 25 mph.
Convert this speed to km/h.

Answer _____ km/h [2]

Total Question 8

9 A box contains a number of packets of crisps of different flavours.
A packet of crisps is taken at random from the box.
Some of the probabilities of taking each flavour are shown in the table below.

Flavour	Cheese	Vinegar	Bacon	Sausage	Beef
Probability	0.3	0.12		0.25	0.05

(a) Calculate the probability that the crisps are Bacon flavour.

Answer _____ [2]

(b) Calculate the probability that the crisps are **not** Vinegar flavour.

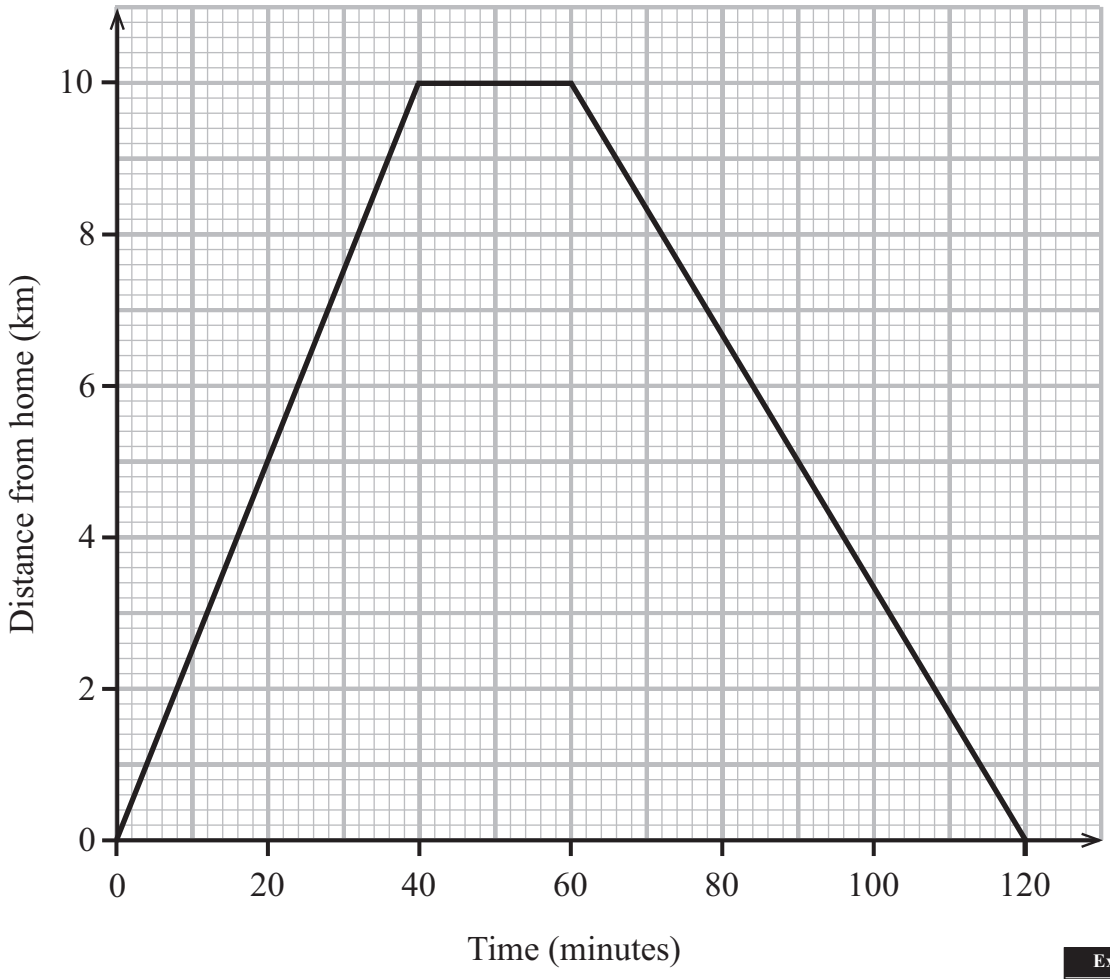
Answer _____ [1]

Total Question 9

[Turn over

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10 Katie went on a cycling trip from her home.
The diagram below shows the distance/time graph for her complete journey.



Examiner Only	
Marks	Remark

(a) What is the meaning of the horizontal line on the graph?

Answer _____ [1]

(b) How far did she travel in the first 30 minutes?

Answer _____ km [1]

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(c) How long did it take her to travel the first 4 kilometres?

Answer _____ minutes [1]

(d) Where was Katie after 120 minutes?

Answer _____ [1]

(e) What was the average speed for the first 30 minutes?

Answer _____ km/h [1]

(f) At what stage of the trip was she travelling at the fastest average speed?

Answer _____ [1]

(g) After how many minutes had she travelled a distance of 14 kilometres?

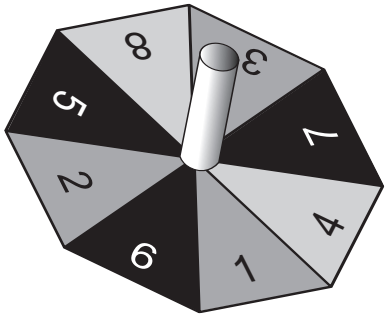
Answer _____ minutes [1]

Examiner Only	
Marks	Remark
Total Question 10	

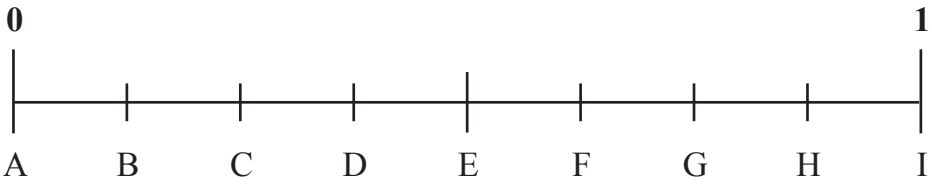
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16GMT5211

11 This spinner is a regular octagon.

Examiner Only	
Marks	Remark



(a) The spinner is spun once.
Below is a probability scale.



From the scale **write down the letter** which represents

(i) the probability of the spinner landing on the number 10

Answer _____ [1]

(ii) the probability of the spinner landing on an even number

Answer _____ [1]

(iii) the probability of the spinner landing on the number 3

Answer _____ [1]

(iv) the probability of the spinner landing on a multiple of 4

Answer _____ [1]

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(b) The spinner is spun 60 times. How many times would you expect it to land on a number greater than 2?

Answer _____ [2]

Total Question 11

12 Divide £292 in the ratio 1 : 3 : 4

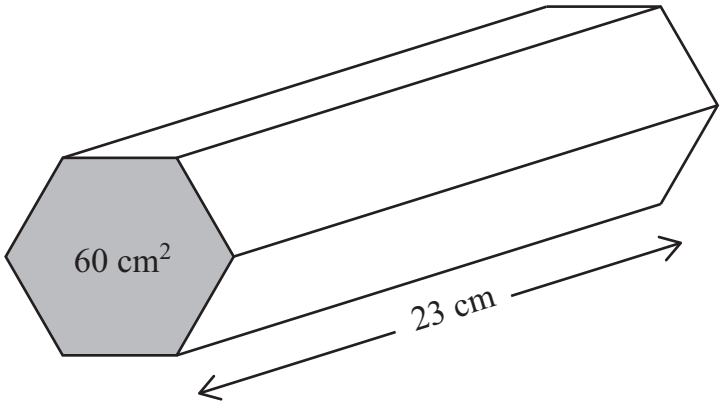
Answer _____ , _____ , _____ [3]

Total Question 12

[Turn over

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13 A solid hexagonal prism of mass 8600 g has a cross-sectional area of 60 cm^2 and length 23 cm.



Calculate the density of the prism in g/cm^3.

Give your answer to an appropriate degree of accuracy.

Answer _____ g/cm^3 [4]

Examiner Only	
Marks	Remark
Total Question 13	

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THIS IS THE END OF THE QUESTION PAPER

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Question Number	**Marks**
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
Total Marks	

Examiner Number

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Rewarding Learning

General Certificate of Secondary Education
January 2014

Mathematics

Unit T5 Paper 2
Foundation Tier

[GMT52]

WEDNESDAY 15 JANUARY

10.45 am – 11.45 am

MARK SCHEME

STEMUP.CO.UK

GCSE MATHEMATICS

Introduction

The mark scheme normally provides the most popular solution to each question. Other solutions given by candidates are evaluated and credit given as appropriate; these alternative methods are not usually illustrated in the published mark scheme.

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				AVAILABLE MARKS
1	**(a)**	33.8	A1	
	(b)	**(i)** 5.75	A1	
		(ii) 5.75 + 3.5 = 9.25	A1	
		arrow drawn at 9.25	A1	4
2	**(a)**	Rose	A1	
		She has 2 in 3 chance compared to Jean who has 1 in 3 chance (or equivalent) (grade G level response)	C1	
	(b)	neither **or** equal chance	A1	
		equal chance both have 1 in 3 chance (grade G level response)	C1	2 2 QWC
3		Monday 6 × 7 = 42	C1	
		Saturday 6 × 1.5 × 7 = 63	C1, A1	
		Sunday 4 × 2 × 7 = 56	CA1	
		Total = 161	CA1	5 QWC
4	**(a)**	1800 + 15 × 75	MA1	
		2925	A1	
	(b)	$\frac{3525-1800}{75}$	MA1	
		23	A1	4
5	**(a)**	correct square	A1	
		correct triangle	A1	
	(b)	correct line	A1	
		rhombus in correct place	A1	4
6		1 × 63 or 3 × 21 or 9 × 7	A1, A1	2
7	**(a)**	(700 ÷ 48 =) 14	A1	
	(b)	700 – (48 × 14) = 28	MA1	2
8		use of 5 miles = 8 kilometres	A1	
		40	A1	2
9	**(a)**	1 – (0.3 + 0.12 + 0.25 + 0.05)	M1	
		= 0.28	A1	
	(b)	1 – 0.12 = 0.88	MA1	3

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				AVAILABLE MARKS
10	**(a)**	She has stopped	A1	
	(b)	7.5	A1	
	(c)	16	A1	
	(d)	Back home	A1	
	(e)	15	A1	
	(f)	first stage	A1	
	(g)	84	A1	7
11	**(a)**	**(i)** A	A1	
		(ii) E	A1	
		(iii) B	A1	
		(iv) C	A1	
	(b)	$\frac{3}{4} \times 60$	MA1	
		$= 45$	A1	6
12		292/8	M1	
		£36.50, £109.50, £146.00	A2	3
13		$60 \times 23 = 1380$	MA1	
		$8600 \div 1380 = 6.23(1884)$	M1, A1	
		6.2 or 6	MA1	4
			Total	**50**

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Rewarding Learning

Centre Number

Candidate Number

General Certificate of Secondary Education
2013

Mathematics

Unit T5 Paper 2
(With calculator)
Foundation Tier



[GMT52]

GMT52

FRIDAY 14 JUNE 10.45 am–11.45 am

TIME

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Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.
You **may** use a calculator for this paper.

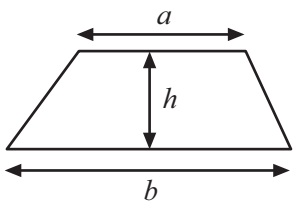
INFORMATION FOR CANDIDATES

The total mark for this paper is 50.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
Functional Elements will be assessed in this paper.
Quality of written communication will be assessed in **question 9**.
You should have a calculator, ruler, compasses and a protractor.
The Formula Sheet is on page 2.

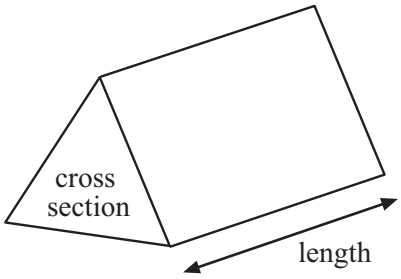
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16GMT5201

Formula Sheet

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



Volume of prism = area of cross section × length



8170

1 From the words below select the most suitable for each of the following.

Certain	Impossible	Very Likely	Likely
Unlikely	Evens	Very Unlikely	

(a) The probability of getting an even number on one throw of an ordinary dice.

Answer _____ [1]

(b) The probability that 2016 is a leap year.

Answer _____ [1]

(c) The probability that two men who meet each other in a supermarket have the same birthday.

Answer _____ [1]

(d) The probability that you would take a yellow ball from a bag containing 5 red and 4 black balls.

Answer _____ [1]

Examiner Only	
Marks	Remark
Total Question 1	

[Turn over

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2 **(a)** Complete the following shopping bill by filling in the blanks.

5 bananas at 29p each ..... £ _____

6 oranges at 33p each ..... £ _____

8 apples at 27p each ..... £ _____

TOTAL: £ _____

[3]

(b) Mrs Winter used 1246 units of electricity during one quarter of the year.
Each unit of electricity cost 7.5p.
Find the total cost of her electricity usage, in pounds, for that quarter.

Answer £ _____ [2]

Examiner Only	
Marks	Remark
Total Question 2	

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16GMT5204

3 A letter is taken at random from the word ASSESSMENTS

(a) Which letter is most likely to be taken?

Answer _____ [1]

(b) Which letters are equally likely to be taken?

Answer _____ [2]

(c) What is the probability of taking the letter Q?

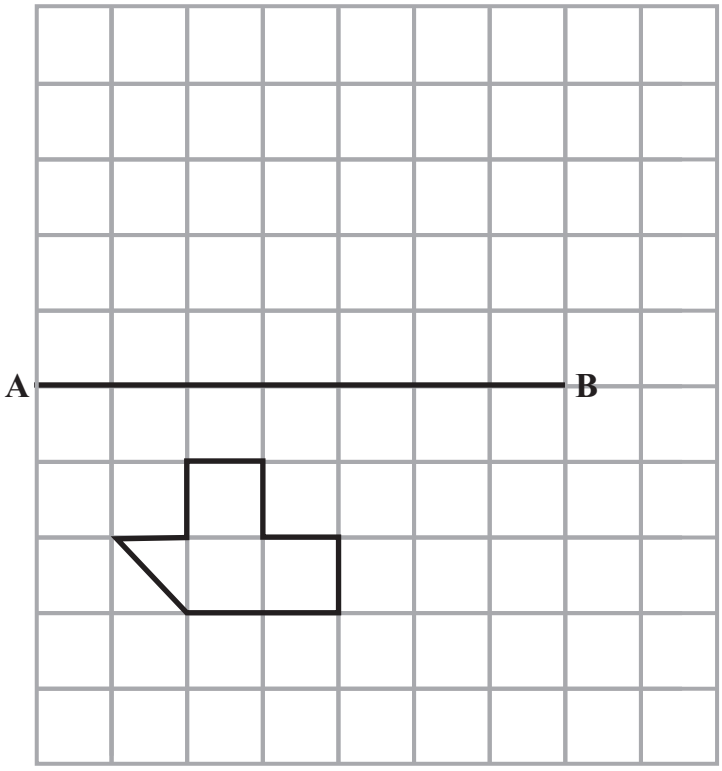
Answer _____ [1]

Examiner Only	
Marks	Remark
Total Question 3	

[Turn over

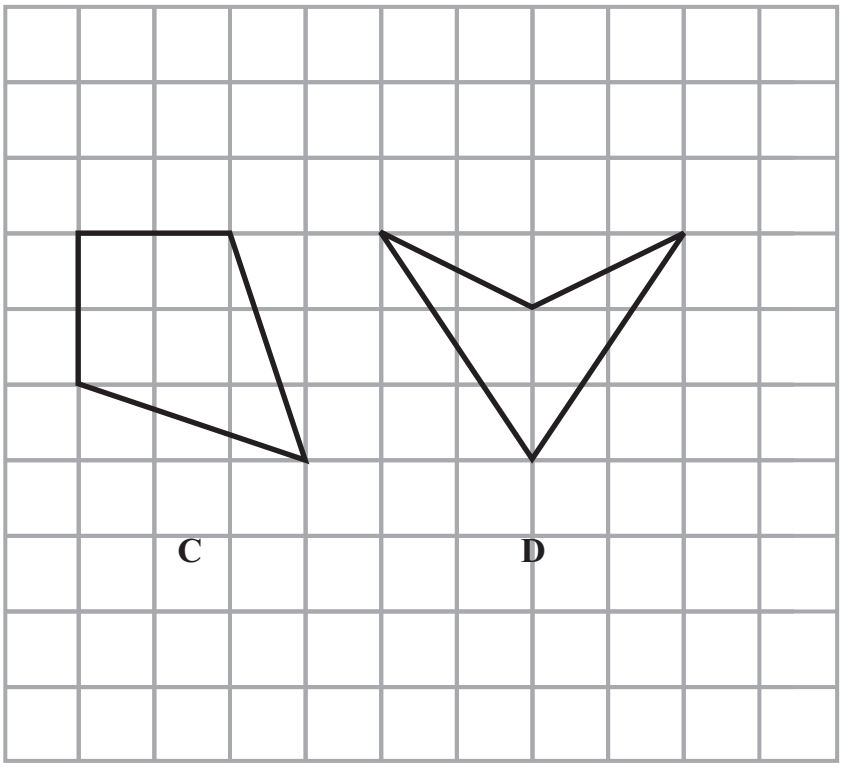
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4



(a) Draw the reflection of the shape in the line AB above. [2]

(b) Draw the line of symmetry in shape C and the line of symmetry in shape D below. [2]



Examiner Only	
Marks	Remark
Total Question 4	

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16GMT5206

5 **(a)** Rae earned a bonus of 3% on her monthly sales of £15 500 in April.

Work out the amount of her bonus.

Answer £ _____ [2]

(b) A building supplier hires out ladders.
The hire charge is £13.25 per day.
There is also a delivery charge of £22.50
Eamon wants to hire a ladder for 5 days.
Work out how much it will cost him in total for hire and delivery.

Answer £ _____ [2]

Examiner Only	
Marks	Remark
Total Question 5	

6 There were 40 tickets sold in a raffle numbered from 101 up to 140

What is the probability that a ticket with a number greater than 125 will win the raffle?

Answer _____ [2]

Total Question 6

[Turn over

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Examiner Only	
Marks	Remark

7 **(a)** The weight of a new baby was recorded as 4 kg.
What is this weight in pounds?

Answer _____ pounds [2]

(b) John bought a 3 litre carton of milk.
How many pints is this?

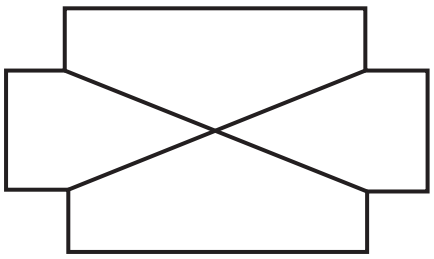
Answer _____ pints [2]

(c) A car travelled a distance of 92 km.
How far is this in miles?

Answer _____ miles [2]

Total Question 7

8



For the shape shown, write down

(a) the number of lines of symmetry,

Answer _____ [1]

(b) the order of rotational symmetry.

Answer _____ [1]

Total Question 8

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Quality of written communication will be assessed in this question.

Examiner Only	
Marks	Remark

9 At Heathrow airport a bottle of water costs £1.85
At Orly airport in Paris the same size bottle of water costs 2 euro.
There are 1.11 euro to £1
In which airport does the bottle of water cost more?
You must show working to justify your answer.

Answer _____ [3]

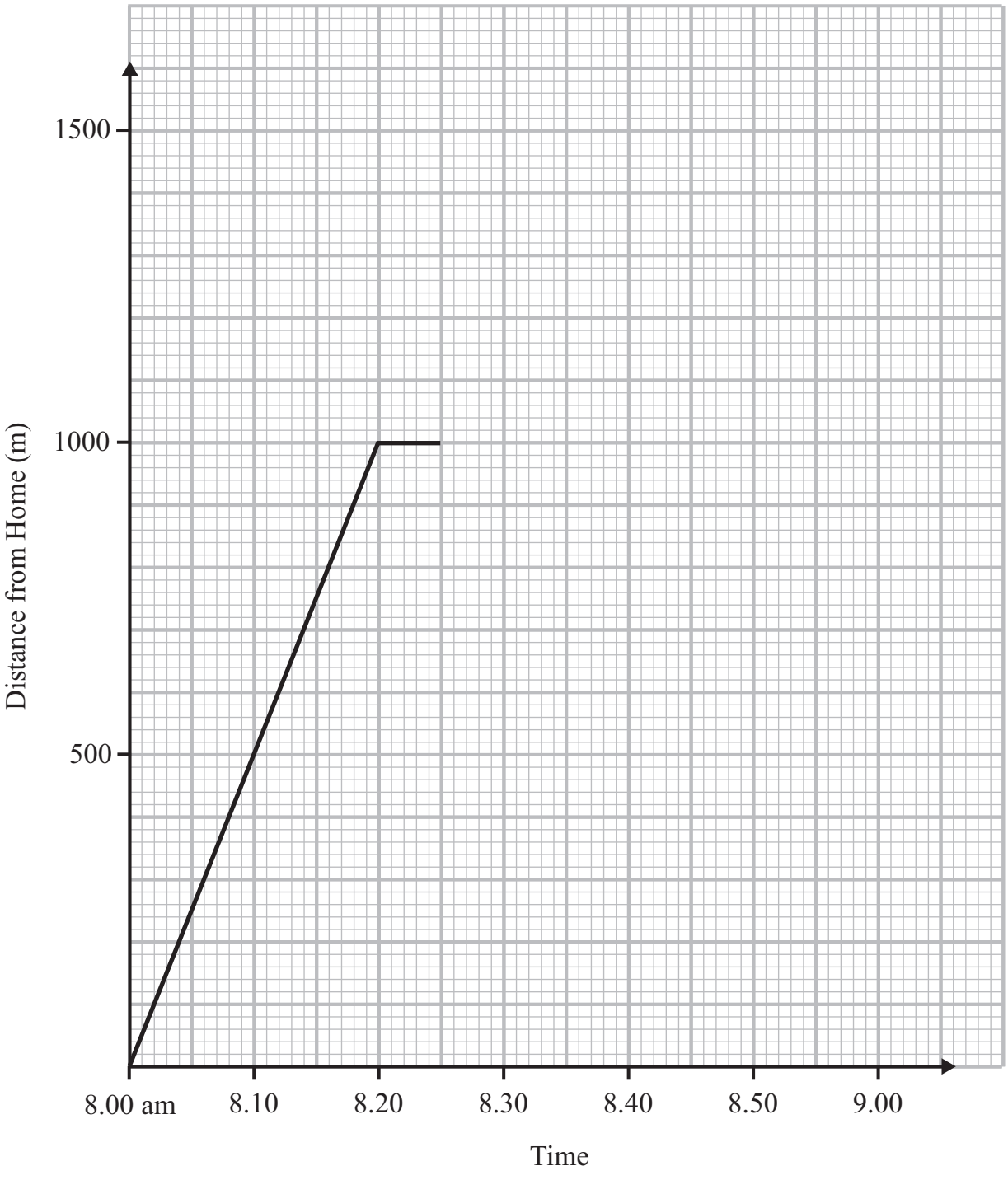
Total Question 9

[Turn over

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16GMT5209

10 On the way to school Sean stops at the shop. When he goes to pay for a drink he finds he has forgotten his money. He runs back home to get it.

The graph shows part of his journey.



8170

(a) How far is the shop from Sean's home?

Answer _____ m [1]

Sean arrives back home at 8.35 am.

(b) Show this part of his journey on the graph. [1]

(c) What was Sean's average speed running home in km/h?

Answer _____ km/h [2]

On his way home Sean meets his sister Maura on her way to school.
She left home at 8.15 am and arrives in school which is 1500 m away at 8.50 am.

(d) Draw on the graph Maura's journey to school. [1]

Total Question 10

11 Use your calculator to find the value of

$$\frac{3.862 + 42.19}{23.17 - 5.967}$$

Give your answer correct to one decimal place.

Answer _____ [2]

Total Question 11

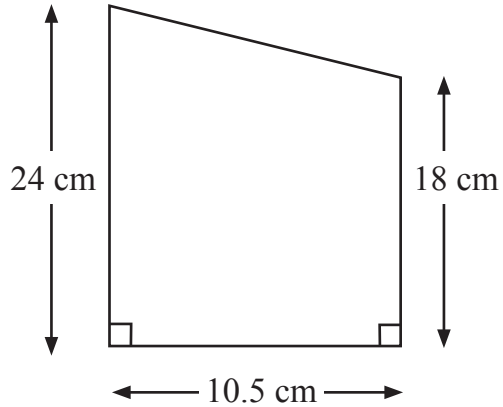
Examiner Only

Marks	Remark

[Turn over

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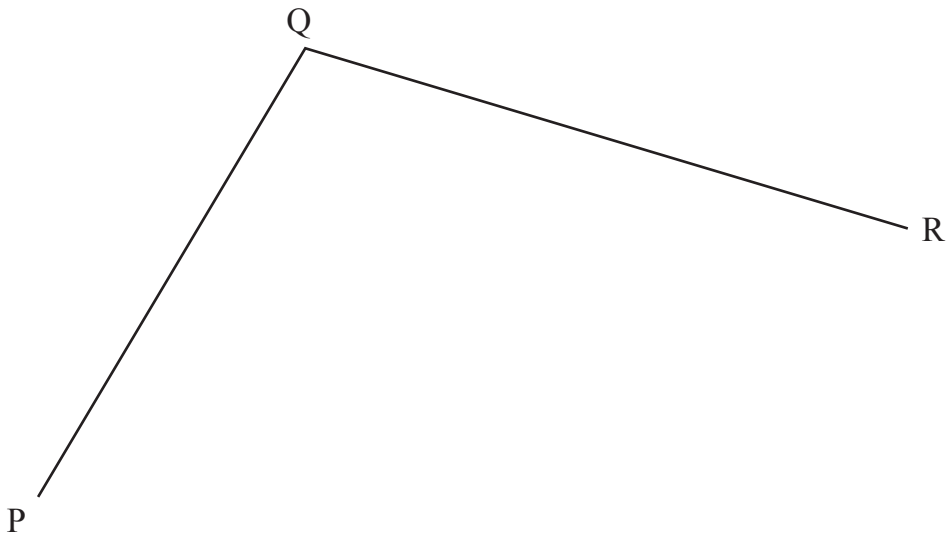
12 Calculate the area of the trapezium shown.



Answer _____ cm^2 [2]

Examiner Only	
Marks	Remark
Total Question 12	

13 Using **ruler and compasses only** bisect the angle PQR shown.



[2]

Total Question 13

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14 The angles in a triangle are in the ratio of 3 : 5 : 7

Work out the sizes of the angles in the triangle.

Answer _____ , _____ , _____ [3]

Examiner Only	
Marks	Remark
Total Question 14	

15 Solve $4x - 10 < 5$

Answer _____ [2]

THIS IS THE END OF THE QUESTION PAPER

Total Question 15	

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For Examiner's use only	
Question Number	**Marks**
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
Total Marks	

Examiner Number

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Rewarding Learning

General Certificate of Secondary Education
2013

Mathematics

Unit T5 Paper 2
Foundation Tier

[GMT52]

FRIDAY 14 JUNE

10.45 am – 11.45 am

MARK SCHEME

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Introduction

The mark scheme normally provides the most popular solution to each question. Other solutions given by candidates are evaluated and credit given as appropriate; these alternative methods are not usually illustrated in the published mark scheme.

The solution to a question gains marks for correct method and marks for accurate working based on this method. The marks awarded for each question are shown in the right hand column and they are prefixed by the letters **M**, **A** and **MA** as appropriate. The key to the mark scheme is given below:

M indicates marks for correct method.
A indicates marks for accurate working, whether in calculation, reading from tables, graphs or answers. Accuracy marks may depend on preceding **M** (method) marks, hence **M**0 **A**1 cannot be awarded i.e. where the method is not correct no marks can be given.
MA indicates marks for combined method and accurate working.
C indicates marks for quality of written communication.
oe indicates "or equivalent" i.e. where a solution can be expressed in an alternative correct form, e.g. $\frac{1}{4} = 0.25$
ft indicates "follow through". See explanation below.

A later part of a question may require a candidate to use an answer obtained from an earlier part of the same question. A candidate who gets the wrong answer to the earlier part and goes on to the later part is naturally unaware that the wrong data is being used and is actually undertaking the solution of a parallel problem from the point at which the error occurred. If such a candidate continues to apply correct method, then the candidate's individual working must be **followed through** from the error. If no further errors are made, then the candidate is penalised only for the initial error. Solutions containing two or more working or transcription errors are treated in the same way. This process is usually referred to as "follow-through marking" and allows a candidate to gain credit for that part of a solution which follows a working or transcription error.

It should be noted that where an error trivialises a question, or changes the nature of the skills being tested, then as a general rule, it would be the case that not more than half the marks for that question or part of that question would be awarded; in some cases the error may be such that no marks would be awarded.

Positive marking:

It is our intention to regard candidates for any demonstration of relevant knowledge, skills or understanding. For this reason we adopt a policy of **following through** their answers, that is, having penalised a candidate for an error, we mark the succeeding parts of the question using the candidate's value or answers and award marks accordingly.

Some common examples of this occur in the following cases:

(a) a numerical error in one entry in a table of values might lead to several answers being incorrect, but these might not be essentially separate errors;

(b) readings taken from candidates' inaccurate graphs may not agree with the answers expected but might be consistent with the graphs drawn.

When the candidate misreads a question in such a way as to make the question easier, only a proportion of the marks will be available (based on the professional judgement of the examiner).

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General Marking Advice

(i) If the correct answer is seen in the body of the script and the answer given in the answer line is clearly a transcription error, full marks should be awarded.

(ii) If the answer is missing, but the correct answer is seen in the body of the script, full marks should be awarded.

(iii) If the correct answer is seen in working but a completely different answer is seen in the answer space, then some marks will be awarded depending on the severity of the error.

(iv) Work crossed out but not replaced should be marked.

(v) In general, if two or more methods are offered, mark only the method that leads to the answer on the answer line. If two (or more) answers are offered (with no solution offered on the answer line), mark the poorest answer.

(vi) For methods not provided for in the mark scheme, give as far as possible equivalent marks for equivalent work.

(vii) Where a follow through mark is indicated on the mark scheme for a particular part question, the marker must ensure that you refer back to the answer of the previous part of the question.

(viii) Unless the question asks for an answer to a specific degree of accuracy, always mark at the greatest number of significant figures seen. E.g. the answer in the mark scheme is 4.65 and the candidate then correctly rounds to 4.7 or 5 on the answer line. Allow full marks for 4.65 seen in the working.

(ix) Anything in the mark scheme which is in brackets (...) is not required for the mark to be earned, but if present it must be correct.

(x) For any question, the range of answers given in the mark scheme is inclusive.

(xi) Incorrect money notation will generally lose one mark but will be penalised only once per paper.

(xii) In general, a tolerance of ±2° is allowed in drawing angles, and ± 2 mm in measuring length.

(xiii) In algebra, if further inaccurate work is done to a correct answer, some marks may be lost.

Quality of written communication

In GCSE Mathematics, particular questions are identified where candidates must demonstrate the quality of their written communication.

In particular, candidates must:

(i) ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear (i.e. comprehension and meaning is clear by using the correct notation and labelling conventions);

(ii) select and use a form and style of writing appropriate to their purpose and to complex subject matter (i.e. reasoning, explanation or argument is correct and appropriately structured to convey mathematical reasoning); and

(iii) organise information clearly and coherently, using specialist vocabulary where appropriate (i.e. the mathematical methods and processes used are coherently and clearly organised and appropriate mathematical vocabulary used).

This assessment may be through, for example, an explanation of the geometrical properties of a given shape or, for example, through concise mathematical argument in a multi-step problem.

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				AVAILABLE MARKS
1	**(a)**	evens	A1	
	(b)	certain	A1	
	(c)	very unlikely	A1	
	(d)	impossible	A1	4
2	**(a)**	£1.45, £1.98, £2.16 (2 correct values, A1) £5.59	A2 A1	
	(b)	1246 × 7.5 £93.45	MA1 A1	5
3	**(a)**	S	A1	
	(b)	A, M, N, T (4 correct and no others, [2]) (2 or 3 correct and no others, [1])	A2	
	(c)	0	A1	4
4	**(a)**	correct reflection (correct reflection in wrong horizontal line or for one vertex wrong, A1)	A2	
	(b)	lines of symmetry drawn correctly	A1, A1	4
5	**(a)**	15 500 × 0.03 £465	MA1 A1	
	(b)	22.50 + 5 × 13.25 £88.75 NB. Calculating 22.50 × 5 + 13.25 gets no marks	MA1 A1	4
6		15 tickets	MA1	
		$\frac{15}{40}\left(\frac{3}{8}\right)$	A1	2
7	**(a)**	4 × 2.2 = 8.8	MA1 A1	
	(b)	3 × 1.75 = 5.25	MA1 A1	
	(c)	$92 \times \frac{5}{8}$	MA1	
		57.5	A1	6

			AVAILABLE MARKS
8	**(a)** 2	A1	
	(b) 2	A1	2
9	Cost in Heathrow = £1.85 = 1.85 × 1.11 = 2.0535 euro	C1, C1	
	Cost in Paris = 2 euro ∴ Heathrow is dearer	C1	
	or		
	Cost in Paris = 2 euro = 2 ÷ 1.11 = 1.8018 ≈ £1.80	C1, C1	
	Cost in Heathrow = £1.85 ∴ Heathrow is dearer	C1	3
10	**(a)** 1000	A1	
	(b) correct line drawn to complete the graph at 8.35	A1	
	(c) 1 km in 10 mins	M1	
	6	A1	
	(d) correct line drawn from (8.15, 0) to (8.50, 1500)	A1	5
11	$\frac{46.052}{17.203}$ **or** 2.67(6974946)	A1	
	Ans 2.7	A1	2
12	$\frac{1}{2}(24 + 18) \times 10.5$	MA1	
	= 220.5	A1	2
13	Three or four arcs drawn indicating correct method	M1	
	Angle bisector drawn accurately with arcs drawn	A1	2
14	180 ÷ 15 = 12	MA1	
	36°, 60°, 84°	A2	3
	(2 angles correct, A1)		
15	$4x < 15$	MA1	
	$x < \frac{15}{4}$ or equivalent	A1	2
		Total	**50**

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Rewarding Learning

Centre Number

Candidate Number

General Certificate of Secondary Education
January 2013

Mathematics

Unit T5 Paper 2
(With calculator)
Foundation Tier



[GMT52]

GMT52

TUESDAY 15 JANUARY 3.00 pm–4.00 pm

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
You must answer the questions in the spaces provided. Do not write outside the box, around each page, on blank pages or tracing paper.
Complete in blue or black ink only. **Do not write in pencil or with a gel pen.**
Answer **all sixteen** questions.
Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.
You **may** use a calculator for this paper.

INFORMATION FOR CANDIDATES

The total mark for this paper is 50.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
Functional Elements will be assessed in this paper.
Quality of written communication will be assessed in **questions 7 and 11**.
You should have a calculator, ruler, compasses and a protractor.
The Formula Sheet is overleaf.

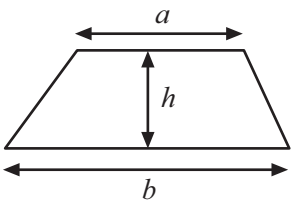
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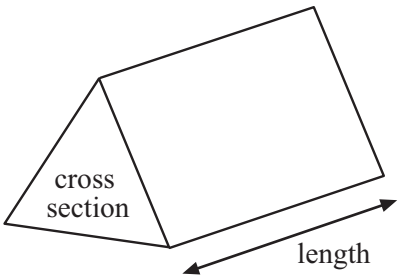
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Formula Sheet

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



Volume of prism = area of cross section × length



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1 **(a)** Jack collects toy cars of different colours.

In a box he has 3 red, 2 yellow and 1 blue car.
He takes a car at random.

Which colour of car is he most likely to take?

Answer _____ [1]

(b) A bag contains cards numbered 1 to 20
A card is taken at random from the bag.

Which type of number, odd, even or square is least likely to be taken?
Explain your answer.

Answer _____ because _____ [2]

Examiner Only	
Marks	Remark
Total Question 1	

2 **Impossible** **Unlikely** **Evens** **Likely** **Certain**

Use words from above to describe the chance of each of the following happening.

(a) A teenager will buy a house. _____ [1]

(b) The day after Monday is Thursday. _____ [1]

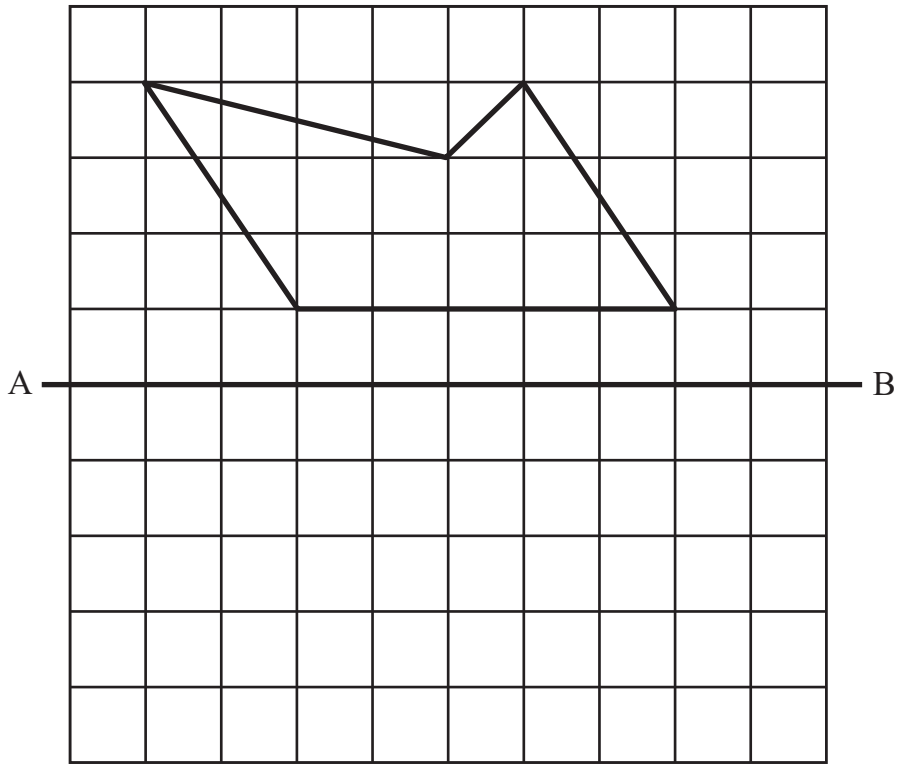
(c) A referee in a football final will have a whistle. _____ [1]

Total Question 2	

[Turn over

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3 Draw the image of the shape after a reflection in the line AB.



[2]

Examiner Only	
Marks	Remark

Total Question 3

4 Place each of these under the correct heading in the table.

$2x + 5$	$y = 2x + 5$	$2x + 5 = 12$

Equation	Expression	Formula

[2]

Total Question 4

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5 **(a)** Which **metric** unit is used to measure

(i) the weight of a large truck, Answer _____ [1]

(ii) the height of the Eiffel Tower, Answer _____ [1]

(iii) the volume of heating oil in a house tank, Answer _____ [1]

(iv) the mass of flour in a cake recipe? Answer _____ [1]

(b) A Quarterback in American football weighs 209 lbs.

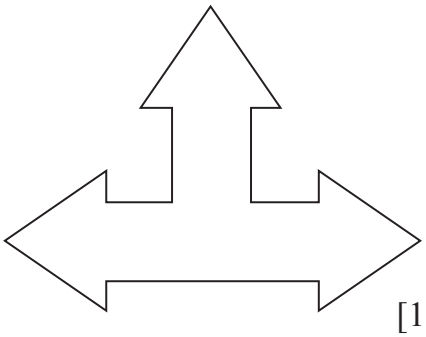
How many kg is this?

Answer _____ kg [2]

Examiner Only	
Marks	Remark
Total Question 5	

[Turn over

6 **(a)** Draw on this shape any lines of symmetry.



[1]

(b) **(i)** Complete the following:

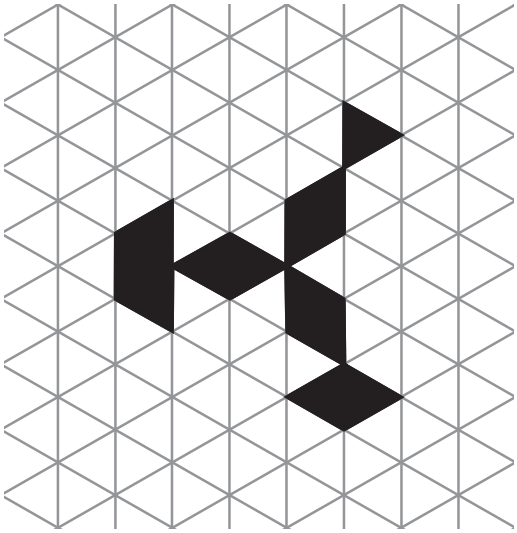
This shape has rotational

symmetry of order _____.



[1]

(ii) Shade 3 more triangles on the shape below so that the pattern will have rotational symmetry of order 3.



[2]

Examiner Only	
Marks	Remark
Total Question 6	

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Quality of written communication will be assessed in this question.
Show your working.

Examiner Only	
Marks	Remark

7 The speed limit on the motorway in Northern Ireland is 70 mph.

Jean Pierre is on holiday in Northern Ireland and his car's speedometer shows its speed in km/h.

Is he breaking the speed limit?
Show all your working.

Answer _____

because _____

_____

_____ [3]

Total Question 7

8 Put brackets in the following statements to make them true.

(a) $8 \times 3 + 6 - 4 = 68$ [1]

(b) $8 - 1 \times 3 + 5 = 56$ [1]

Total Question 8

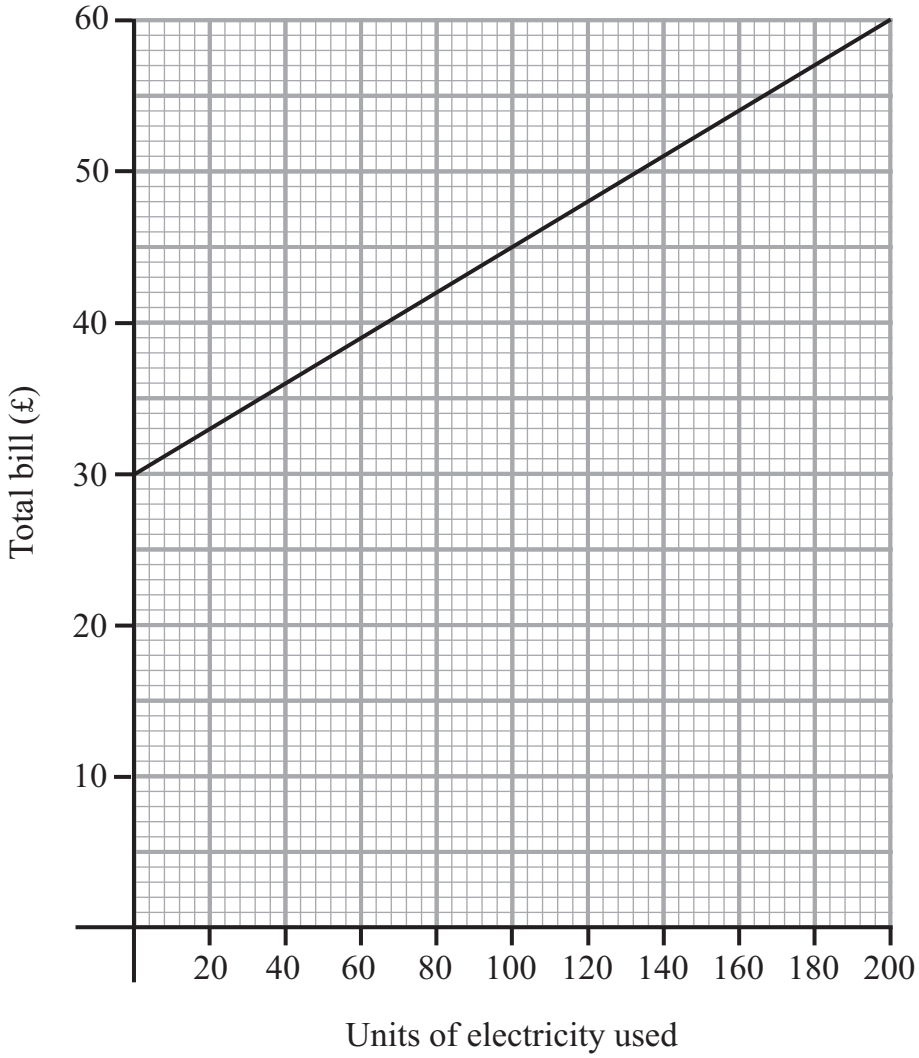
[Turn over

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9 An electricity bill is calculated from a formula.

Total bill = Fixed charge + cost of units of electricity used

The graph shows how the bill varies for units of electricity used.



(a) Kevin uses 120 units of electricity. How much is his bill?

Answer £ _____ [1]

(b) Kate's bill was £52.50
How many units of electricity did she use?

Answer _____ units [1]

Examiner Only	
Marks	Remark

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(c) How much is the fixed charge?

Answer £ _____ [1]

(d) Work out the charge for one unit of electricity.

Answer _____ [2]

Examiner Only	
Marks	Remark
Total Question 9	

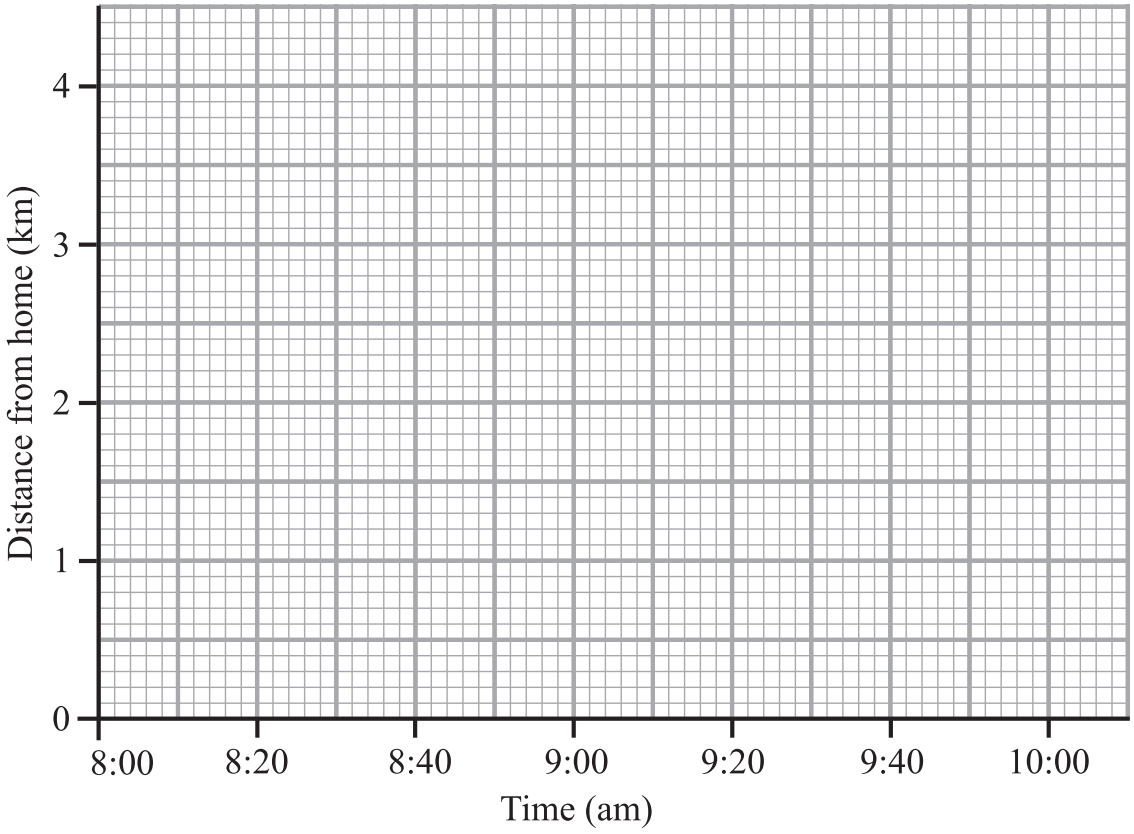
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10 Jane walked $2\frac{1}{2}$ km from home to school on Friday.

She left home at 8.20 am and walked to the shop 1 km away. It took her 20 minutes.
She waited for 10 minutes at the shop to meet a friend.
She then continued her journey to school, walking at 3 km/hr.

Show Jane's journey on the travel graph below.



[3]

Examiner Only	
Marks	Remark
Total Question 10	

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Quality of written communication will be assessed in this question.
Show your working.

Examiner Only	
Marks	Remark

11 A sports competition was held in London and Paris. The prize money in London was £140 000 and the prize money in Paris was €160 000 (£1 = €1.15)

Which city paid out the most prize money?
You must show working.

Answer _____ [3]

Total Question 11	

[Turn over



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12 Nathan earns £36 000 per year. His tax free allowance is £8 000
He pays 26% of the remaining salary in tax.
How much of his salary is left after tax has been deducted?

Answer £ _____ [3]

Examiner Only	
Marks	Remark
Total Question 12	

13 A factory machine fills bags of chocolate minibars. Each bag should contain 18 minibars.

Leanne tests the machine's accuracy by selecting 100 bags at random and counting the number of minibars.
The table shows her results.

Number of minibars	Less than 18	Exactly 18	More than 18
Number of Bags	8	76	16

A bag is then chosen at random from the 100

(a) What is the probability that it contains at least 18 minibars?

Answer _____ [2]

(b) What is the probability that it will **not** contain exactly 18 minibars?

Answer _____ [2]

Examiner Only	
Marks	Remark
Total Question 13	

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14 Audrey, Becks and Clare invest money in a business in the ratio 3:4:5
Audrey invests £5400
How much do Becks and Clare each invest?

Answer Becks £ _____

Clare £ _____ [2]

Examiner Only

Marks	Remark

Total Question 14

15 There are 480 boys and 560 girls in Digby High School.
The probability that a boy has brown hair is 0.6
The probability that a girl has brown hair is 0.45
How many pupils in the school have brown hair?

Answer _____ [3]

Total Question 15

16 Rewrite $k = ax - b$ to make x the subject.

Answer x = _____ [2]

Total Question 16

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THIS IS THE END OF THE QUESTION PAPER

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For Examiner's use only	
Question Number	**Marks**
1	
2	
3	
4	
5	
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8	
9	
10	
11	
12	
13	
14	
15	
16	
Total Marks	

Examiner Number

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Rewarding Learning

General Certificate of Secondary Education
January 2013

Mathematics

Unit T5 Paper 2

Foundation Tier

[GMT52]

TUESDAY 15 JANUARY
3.00 pm–4.00 pm

MARK SCHEME

STEMUP.CO.UK

Introduction

The mark scheme normally provides the most popular solution to each question. Other solutions given by candidates are evaluated and credit given as appropriate; these alternative methods are not usually illustrated in the published mark scheme.

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M indicates marks for correct method.

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MA indicates marks for combined method and accurate working.

C indicates marks for quality of written communication.

A later part of a question may require a candidate to use an answer obtained from an earlier part of the same question. A candidate who gets the wrong answer to the earlier part and goes on to the later part is naturally unaware that the wrong data is being used and is actually undertaking the solution of a parallel problem from the point at which the error occurred. If such a candidate continues to apply correct method, then the candidate's individual working must be **followed through** from the error. If no further errors are made, then the candidate is penalised only for the initial error. Solutions containing two or more working or transcription errors are treated in the same way. This process is usually referred to as "follow-through marking" and allows a candidate to gain credit for that part of a solution which follows a working or transcription error.

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This assessment may be through, for example, an explanation of the geometrical properties of a given shape or, for example, through concise mathematical argument in a multi-step problem.

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			AVAILABLE MARKS
1	**(a)** Red	A1	
	(b) Square because there are fewer square numbers	A1, A1	3
2	**(a)** Unlikely	A1	
	(b) Impossible	A1	
	(c) Certain	A1	3
3	Correct reflection (3 lines in the correct position MA1)	MA2	2
4	Equation: $2x + 5 = 12$ Expression: $2x + 5$ Formula: $y = 2x + 5$	A2 [A1 for any 1 correct]	2
5	**(a)** **(i)** tonne	A1	
	(ii) metre	A1	
	(iii) litre	A1	
	(iv) gram	A1	
	(b) $\frac{209}{2.2} = 95$	M1 A1	6
6	**(a)** Line drawn in correct place	A1	
	(b) **(i)** Order 4	A1	
	(ii) 3 triangles correctly shaded allow A1 for 2 correct	MA2	4
7	For evidence of reading 130	C1	
	$\frac{130}{8} \times 5 = 81.25$ mph **or** $\frac{70}{5} \times 8 = 112$ km/h **or** 130 km/h = 81.25mph, 70 mph = 112 km/h	C1	
	Yes because his speed is greater than the limit	C1	3
8	**(a)** $8 \times (3 + 6) - 4 = 68$	A1	
	(b) $(8 - 1) \times (3 + 5) = 56$	A1	2

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			AVAILABLE MARKS
9	**(a)** £48	A1	
	(b) 148–152 units	A1	
	(c) £30	A1	
	(d) Correct cost for units used	MA1	
	$\frac{\text{cost}}{\text{units}}$ leading to £0.15 or 15p	MA1	5
10	A1 for each correct section on graph		
	8.20 home to 8.40 (1 km)	A1	
	8.40 to 8.50 horizontal	A1	
	8.50 to 9.20 ($2\frac{1}{2}$ km)	A1	3
11	$140\,000 \times 1.15$ or $160\,000 \div 1.15$	C1	
	£140 000 = €161 000 or €160 000 $\simeq$ £139 130	C1	
	London	C1	3
12	$36000 - 8000 = 28000$	MA1	
	$\frac{26}{100} \times 28000 = 7280$	MA1	
	$36000 - 7280 = 28720$	MA1	3
13	**(a)** $76 + 16 = 92$	MA1	
	$\frac{92}{100}$ (correct equivalent)	A1	
	(b) $100 - 76 = 24$ or $8 + 16 = 24$	MA1	
	$\frac{24}{100}$ (correct equivalent)	A1	4
14	$\frac{5400}{3} = 1800$ (seen)	MA1	
	Leading to		
	$4 \times 1800 = 7200$		
	$5 \times 1800 = 9000$	A1	2
15	$480 \times 0.6 + 560 \times 0.45$	MA1	
	$= 288 + 252$	MA1	
	$= 540$	A1	
	or		
	$480 \times 0.6 = 288$	MA1	
	$560 \times 0.45 = 252$	MA1	
	$288 + 252 = 540$	MA1	3

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16	$k + b = ax$	MA1	
	$x = \frac{k + b}{a}$	MA1	2
		Total	**50**

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Rewarding Learning

Centre Number

Candidate Number

General Certificate of Secondary Education
2012

Mathematics

Unit T5 Paper 2
(With calculator)
Foundation Tier



[GMT52]

GMT52

MONDAY 11 JUNE 2.45 pm–3.45 pm

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
Write your answers in the spaces provided in the question paper.
Complete in blue or black ink only. **Do not write in pencil or with a gel pen.**
Answer **all sixteen** questions.
Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.
You **may** use a calculator for this paper.

INFORMATION FOR CANDIDATES

The total mark for this paper is 50.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
Functional Elements will be assessed in this paper.
Quality of written communication will be assessed in **questions 2, 3 and 7**.
You should have a calculator, ruler, compasses and protractor.
The Formula Sheet is overleaf.

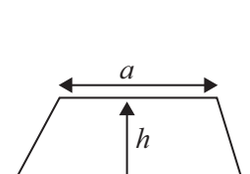
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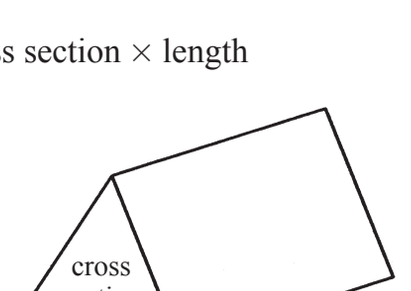
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Formula Sheet

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



Volume of prism = area of cross section × length



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Answer **all** questions.

Examiner Only	
Marks	Remark

1 Choose from the following to name the solids below.

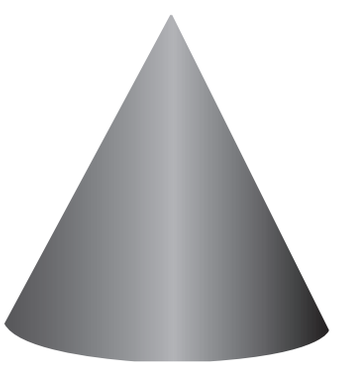
Cylinder	**Cone**	**Cube**	**Sphere**
Triangular Prism		**Cuboid**	**Pyramid**

(a)



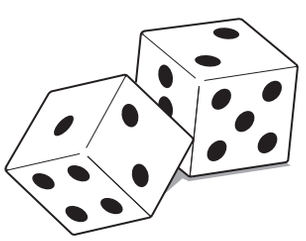
Answer _____ [1]

(b)



Answer _____ [1]

(c)



Answer _____ [1]

Total Question 1

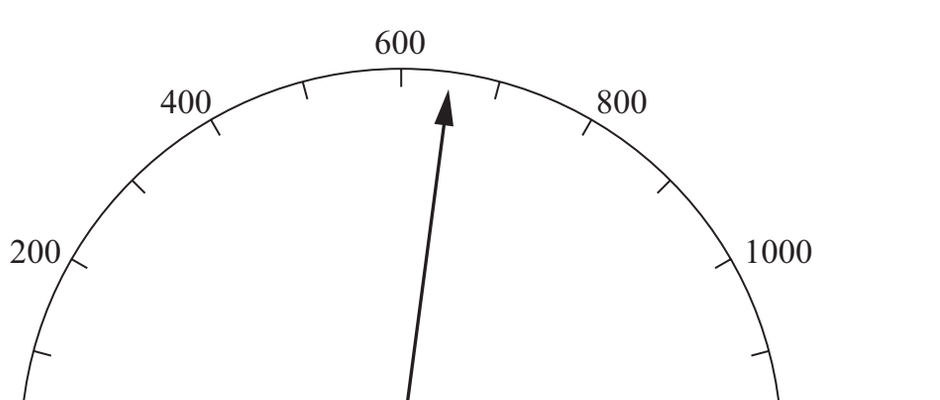
[Turn over

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Quality of written communication will be assessed in this question.

Examiner Only	
Marks	Remark

2



The gauge above shows the amount of heating oil that Brian had in his oil tank on 1st January.

(a) How much oil was in the tank?

Answer _____ litres [1]

Brian uses 140 litres of oil per month.

(b) Is there enough oil in the tank to last until 30th April?

Explain your answer.

Answer _____ because _____

_____ [2]

A delivery of 900 litres of oil is made to Brian on 1st May.

(c) Show how much oil is in the tank after the delivery on 1st May by marking it clearly on the gauge above. [2]

Total Question 2

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Quality of written communication will be assessed in this question.

Examiner Only	
Marks	Remark

3 Scaffolding can be hired.

The hire charge is calculated using this formula:

Fifty-five pounds per day plus a fixed charge of eighty pounds

(a) Is the cost of hiring the scaffolding for 10 days twice the cost of hiring the scaffolding for 5 days?

Explain your answer.

Answer _____ because _____

_____ [2]

(b) A builder paid £850 altogether to hire some scaffolding.

For how many days did he hire the scaffolding?

Answer _____ days [2]

Total Question 3	

4 **(a)** In the following sentences fill in appropriate metric units.

(i) Lengths can be measured in **feet** or _____ [1]

(ii) Milk can be bought in **pints** or _____ [1]

(iii) Sugar can be bought in **pounds** or _____ [1]

(b) The distance between two towns is 48 kilometres.

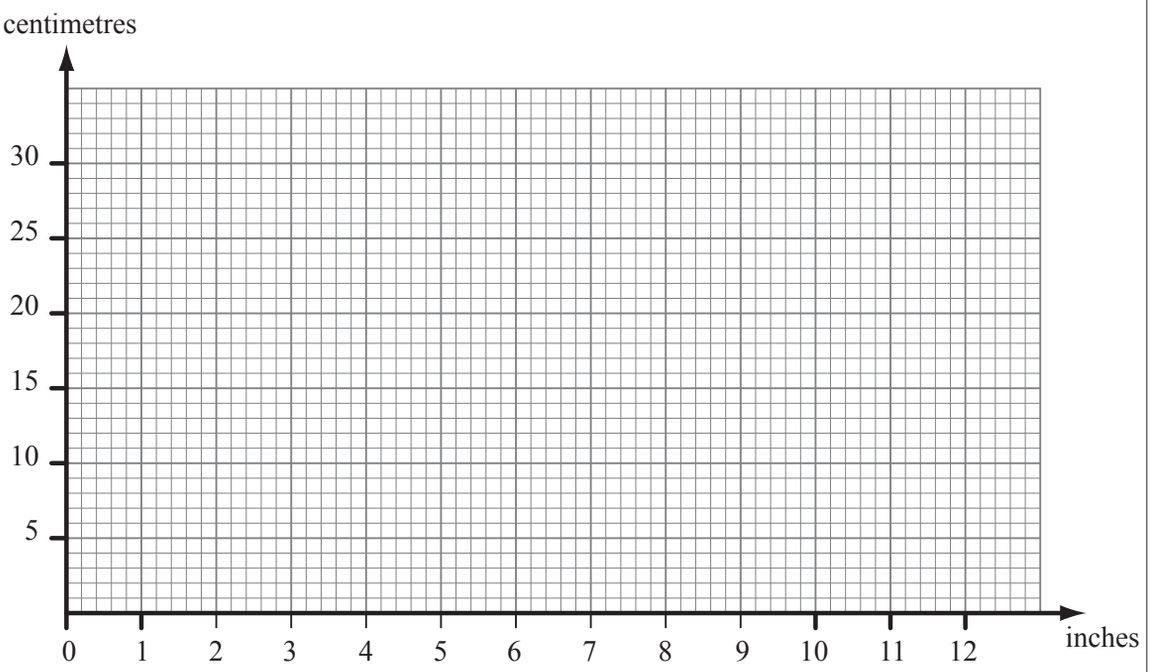
How many miles is this?

Answer _____ miles [2]

Examiner Only	
Marks	Remark
Total Question 4	

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5 **(a)** Four inches is approximately equal to 10 centimetres. Use this information to draw a conversion graph.



[1]

(b) Use your graph to change

(i) 22 centimetres to inches,

Answer _____ inches [1]

(ii) 5 inches to centimetres.

Answer _____ cm [1]

Examiner Only	
Marks	Remark
Total Question 5	

[Turn over

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6 What type of triangle has

(a) three lines of symmetry?

Answer _____ [1]

(b) only one line of symmetry?

Answer _____ [1]

Examiner Only	
Marks	Remark
Total Question 6	

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Quality of written communication will be assessed in this question.

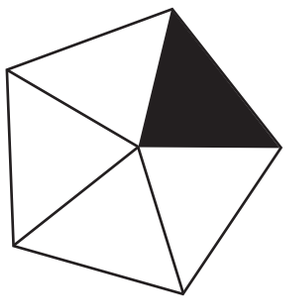
Examiner Only	
Marks	Remark

7 (a) Arrange the events, A, B and C, in order of likelihood from **least** likely to **most** likely.

A Getting a tail on one throw of a fair coin.

B Getting a 2 on one throw of a fair dice.

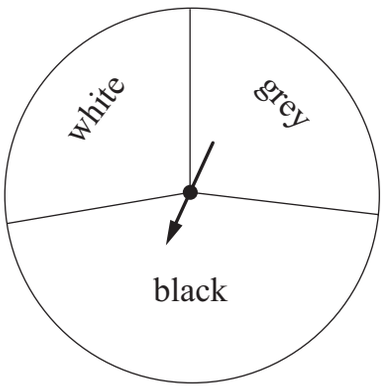
C Getting black on one spin of this spinner



least likely most likely

Answer _____, _____, _____ [2]

(b)



This spinner has 3 possible outcomes – white, grey or black.

Janet says that 1 of the 3 outcomes is black, so the probability that the arrow will stop on black is $\frac{1}{3}$.

Is Janet correct? Explain your answer.

Answer _____ because _____

_____ [2]

Total Question 7

[Turn over

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8 Write

(a) 0.00592 to 4 decimal places,

Answer _____ [1]

(b) 0.09502 to 2 decimal places.

Answer _____ [1]

Examiner Only	
Marks	Remark
Total Question 8	

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9 While Peter was on a visit to India he bought a camera for 6000 rupees.

The exchange rate at the time was £1 = 63.45 rupees.

Work out the cost of the camera in pounds.

Answer £ _____ [2]

Examiner Only	
Marks	Remark
Total Question 9	

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10 **(a)** Using only the symbols + and ×, insert one into each box so that the calculation will be correct.

6 ☐ 8 ☐ 10 = 58 [1]

(b) Using symbols from ×, ÷, + or −, insert one into each box so that the calculation will be correct.

You may use each symbol only once.

4 ☐ 4 ☐ 7 ☐ 2 = 30 [2]

Examiner Only	
Marks	Remark
Total Question 10	

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11 Melissa says "Five times a number is always bigger than the number".

Give an example to show she is wrong.

[2]

Examiner Only	
Marks	Remark
Total Question 11	

[Turn over

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12 75 grams of flour and 135 millilitres of milk are needed to make 12 biscuits.

Examiner Only	
Marks	Remark

(a) How much flour is needed to make 30 biscuits?

Answer _____ grams [1]

(b) How many biscuits can be made with 175 grams of flour, provided there is enough milk?

Answer _____ biscuits [1]

(c) A number of biscuits are made using 300 grams of flour.

How much milk is needed?

Answer _____ millilitres [1]

Total Question 12

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13 **(a)** Make y the subject in the following equation and simplify the answer.

$$5x - 7 = 5 - y$$

Answer $y =$ _____ [2]

(b) Which of the statements below describes the number $3n + 1$, where n represents any whole number? Explain your answer.

"always even" **"always odd"** **"could be even or odd"**

Answer _____

because _____

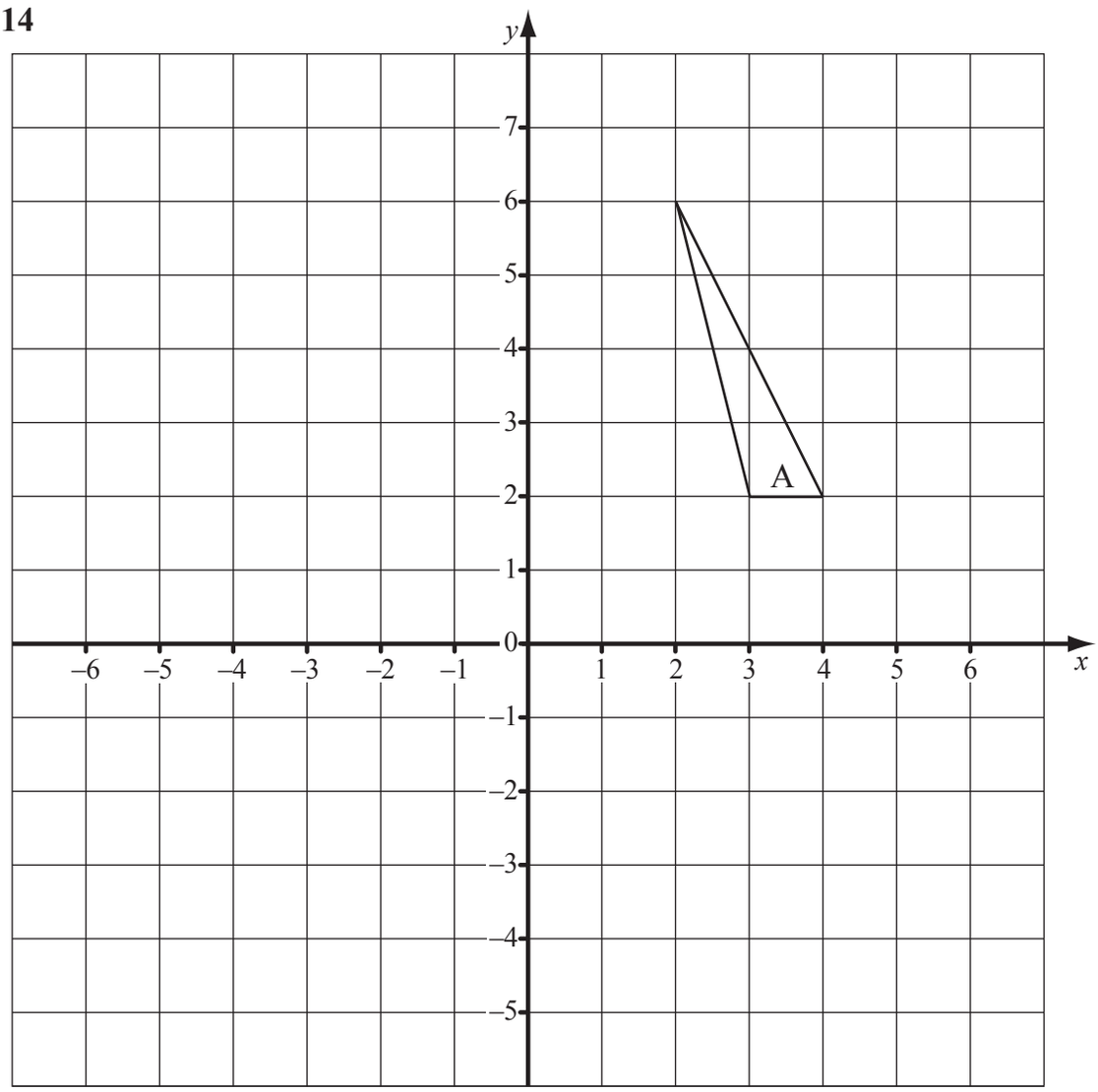
_____ [2]

Examiner Only	
Marks	Remark
Total Question 13	

[Turn over

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14



(a) Draw the image of triangle A after a translation $\begin{pmatrix} -6 \\ -2 \end{pmatrix}$. Label it B. [2]

(b) Draw the image of triangle A after a rotation of 90° clockwise about the point (−1, 0). Label it C. [2]

Examiner Only	
Marks	Remark
Total Question 14	

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15 Solve $8x < 6 + 3x$

Answer _____ [2]

Examiner Only	
Marks	Remark
Total Question 15	

[Turn over

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16 Simplify

(a) $a^4 \times a^4$

Answer _____ [1]

(b) $\dfrac{b \times b^5}{b^2}$

Answer _____ [1]

Examiner Only	
Marks	Remark
Total Question 16	

THIS IS THE END OF THE QUESTION PAPER

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Question Number	**Marks**
1	
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16	
QWC	
Total Marks	

Examiner Number

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New Specification

Rewarding Learning

General Certificate of Secondary Education
2012

Mathematics

Unit T5 Paper 2
Foundation Tier

[GMT52]

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				AVAILABLE MARKS
1	**(a)**	sphere	A1	
	(b)	cone	A1	
	(c)	cube	A1	3
2	**(a)**	650	A1	
	(b)	$140 \times 4 = 560$	MA1	
		Quality of written communication		
		Yes, because there will be 90 litres remaining **or** $560 < 650$	A1	
	(c)	$90 + 900 = 990$	MA1	
		990 marked correctly on the gauge	A1	5
3	**(a)**	No because 10 days cost £630 and 5 days cost £355	MA1	
		$355 \times 2 = 710 \neq 630$	A1	
	(b)	$850 - 80 = 770$	MA1	
		$\frac{770}{55} = 14$	MA1	4
4	**(a)**	**(i)** metres or centimetre or mm	A1	
		(ii) litres or ml	A1	
		(iii) kg or g	A1	
	(b)	$48 \div 8 = 6$ or 8 km = 5 miles	MA1	
		$6 \times 5 = 30$	MA1	5
5	**(a)**	correct conversion graph drawn	A1	
	(b)	**(i)** 8.8	A1	
		(ii) 12.5	A1	3
6	**(a)**	equilateral	A1	
	(b)	isosceles	A1	2

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				AVAILABLE MARKS
7	**(a)**	probabilities of $\frac{1}{2}, \frac{1}{6}, \frac{1}{5}$ identified	MA1	
		B C A	A1	
	(b)	No: because each of the 3 angles at centre are not equal in size so probabilities are not equally likely (or black section has large angle so more likely to land on black) (*or equivalent explanation*)	A2	4
		Quality of written communication		
8	**(a)**	0.0059	A1	
	(b)	0.10	A1	2
9		$6000 \div 63.45$	MA1	
		£94.56	A1	2
10	**(a)**	$\times, +$	A1	
	(b)	$+, \times, -$	A2	3
11		suitable example (negative number)	A2	2
12	**(a)**	187.5	A1	
	(b)	28	A1	
	(c)	540	A1	3
13	**(a)**	$5x + y = 5 + 7$	MA1	
		$y = 12 - 5x$	A1	
	(b)	'could be even or odd'	A1	
		suitable examples to illustrate	A1	4
14	**(a)**	6 left	A1	
		2 down	A1	
	(b)	rotation	A1	
		centre	A1	4

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			AVAILABLE MARKS
15	$5x < 6$	MA1	
	$x < \frac{6}{5}$ or 1.2	A1	2
16	**(a)** a^8	A1	
	(b) b^4	A1	2
		Total	**50**

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