Surname		Centre Number	Candidate Number
Other Names			0

GCSE – NEW

3300U20-1

MATHEMATICS
UNIT 2: CALCULATOR-ALLOWED
FOUNDATION TIER

THURSDAY, 10 NOVEMBER 2016 – MORNING

1 hour 30 minutes

ADDITIONAL MATERIALS

A calculator will be required for this paper.

A ruler, a protractor and a pair of compasses may be required.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

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

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

If you run out of space, use the continuation page at the back of the booklet, taking care to number the question(s) correctly.

Take π as 3·14 or use the π button on your calculator.

INFORMATION FOR CANDIDATES

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

Unless stated, diagrams are not drawn to scale.

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

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

In question **3**, the assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing.

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	7	
2.	2	
3.	5	
4.	6	
5.	3	
6.	3	
7.	5	
8.	4	
9.	2	
10.	3	
11.	3	
12.	4	
13.	4	
14.	2	
15.	3	
16.	4	
17.	5	
Total	65	

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Formula List - Foundation Tier

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

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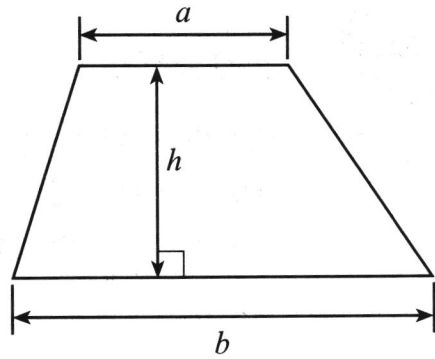
1. *(a)* Fill in the boxes below to make each calculation correct. [4]

8	×	£0.45	=	£ ....

6	×	£	=	£6.30

....	×	65p	=	£7.80

£3.60	÷	....	=	36p

(b) (i) Find the total of £7.30, £15.60 and 87p. [1]

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....

....

(ii) Write this total correct to the nearest £1. [1]

....

(iii) Write this total correct to the nearest £10. [1]

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2. Circle either TRUE or FALSE for each of the following statements. [2]

STATEMENT		
This shape is a pentagon.	TRUE	FALSE
The straight line shown in this circle is a diameter.	TRUE	FALSE
All quadrilaterals can be split into two triangles.	TRUE	FALSE
All isosceles triangles have 3 sides of equal length.	TRUE	FALSE

3. *In this question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

Charlotte writes down 3 different factors of 20.
The sum of the 3 factors is greater than 10 but less than 15.

What 3 factors could Charlotte have written down?
You must show how you worked out your answer. [3 + 2 OCW]

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4. The number of points scored by the Welsh rugby team in their 9 games during the 2014-2015 season were as follows:

28   17   16   12   16   26   20   23   61

(a) Find the mode of the number of points scored. [1]

(b) Find the median number of points scored. [2]

(c) Find the mean number of points scored. [3]

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5. *(a)* Circle the correct answer for the following statement. [1]

$5a + 4a - a$ can be simplified as

9        $5a + 4$ $8a$ 8 $9a$

(b) A linear sequence of numbers is shown below.
Two of the numbers are missing.

19, ... , ... ,   7,   3

Fill in the missing numbers in the sequence.
Write down the rule for finding the next term in the sequence. [2]

....

....

Rule: ....

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6. A sixth number is to be added to the list below.

	12	6	15	3	5

When the sixth number is added, the range increases by 2.

Write down the two possible values for the sixth number.
You must show all your working. [3]

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Turn over.

7. *(a)* Gareth is running a game stall at his school fete.
In his game, a player must flip a coin and spin a fair 4-sided spinner.
The sections of the spinner are labelled 1, 2, 3 and 4, as shown below.
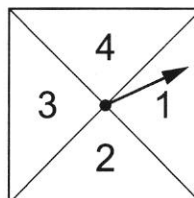
(i) Write down all the possible outcomes.
One has been done for you. [2]

Head, 1

(ii) A player wins a prize if the coin lands on tails and the spinner shows the number 4.
Azi plays the game once.

What is the probability that Azi wins a prize? [2]

(b) Cerys says:

"The chance of throwing a three on an ordinary 6-sided dice is higher than the chance of throwing a six, because six is the hardest number to get."

Is Cerys correct?
Explain your reasoning fully. [1]

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8. Using only the numbers in the following list,

| 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 |

write down

(a) a prime number, [1]

....

(b) a cube number, [1]

....

(c) a factor of 186, [1]

....

(d) a multiple of 7·25. [1]

....

9. Circle the correct answer for each of the following statements.

(a) One angle in a right-angled triangle is 60°.
One of the other angles must be

180°   30°   120°   60°   360°. [1]

....

(b) Huw is facing North.
He turns **clockwise** until he is facing West.
He has turned through an angle of

270°   3°   90°   0·75°   9°. [1]

....

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10. Shade the least number of squares in the lower two quadrants so that the grid has rotational symmetry of order 2. [3]

11.

74°

x

117°

125°
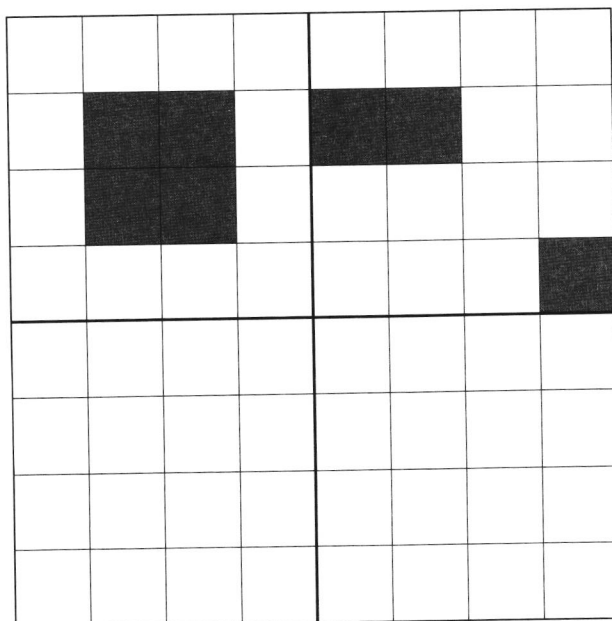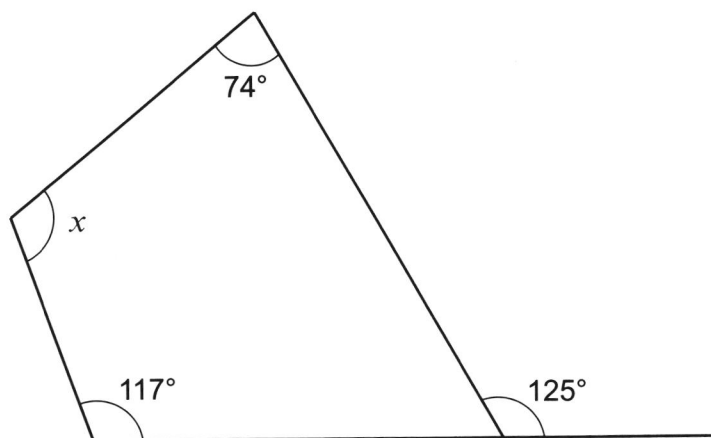
Diagram not drawn to scale

Find the size of the angle x. [3]

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$x =$ .... °

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12. *(a)* Solve the equation $3x - 2 = 10$. [2]

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(b) A number machine is shown below.

| INPUT | → | ADD 5 | → | MULTIPLY BY 7 | → | OUTPUT |
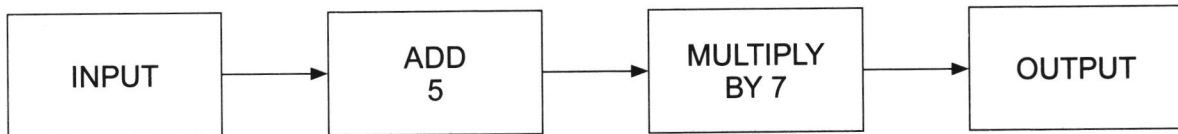
Calculate the OUTPUT when the INPUT is −2. [1]

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(c) Expand $2(x + 3)$. [1]

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13. **Show clearly** whether the following statement is true or false.   [4]

'If you increase a positive number by 10% and then decrease that new value by 10%, you get back to your original number.'

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14. Circle either TRUE or FALSE for each statement given below.   [2]

| STATEMENT		
All equilateral triangles are congruent.	TRUE	FALSE
All squares with equal areas are congruent.	TRUE	FALSE
Circles with equal perimeters are congruent.	TRUE	FALSE
All regular octagons are congruent.	TRUE	FALSE

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15. Complete each row of the following table.
The first row has been done for you.

[3]

Place	Temperature at midday	Change	Temperature at following midday
Holyhead	−1°C	Up 3°C	2°C
Dolgellau	−3°C		1°C
Cardigan	2°C	Down 3°C	
Newport		Up 2°C	−2°C

16. A square has a perimeter of 80 cm.
A circle fits exactly inside the square, as shown in the diagram.
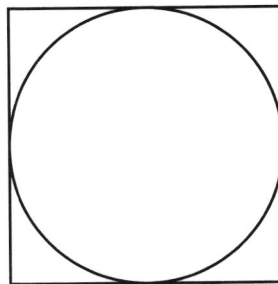
Calculate the circumference of the circle.
Give your answer correct to 1 decimal place.
You must show your working.
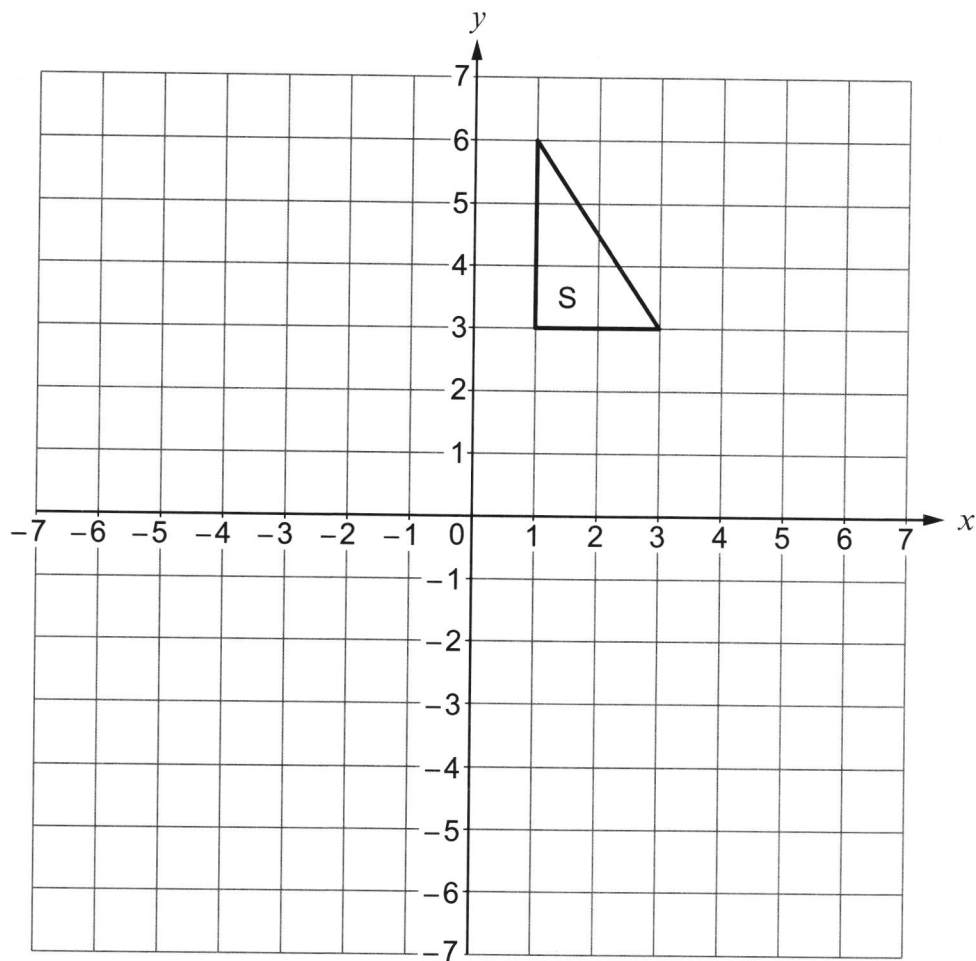
[4]

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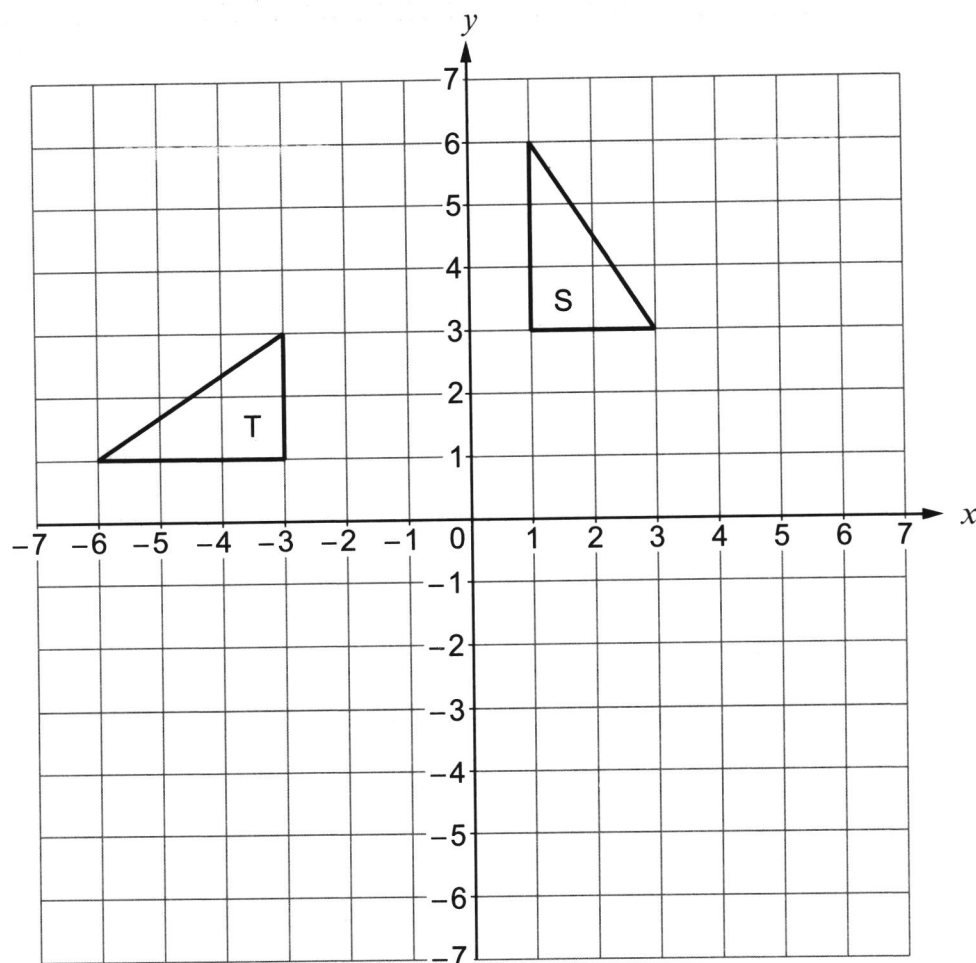
Turn over.

17. *(a)* Reflect the triangle S in the line $y = 2$.

[2]

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(b) Describe fully a single transformation that transforms triangle S onto triangle T. **[3]**

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END OF PAPER

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Question number	Additional page, if required. Write the question number(s) in the left-hand margin.	Examiner only

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