

Surname	Centre Number	Candidate Number
First name(s)		0



GCSE
3300U40-1



WEDNESDAY, 11 JUNE 2025 – MORNING

MATHEMATICS
UNIT 2: CALCULATOR-ALLOWED
INTERMEDIATE TIER

1 hour 45 minutes

ADDITIONAL MATERIALS

A calculator will be required for this examination.
A ruler, 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 additional page at the back of the booklet. Question numbers must be given for all work written on the additional page.
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 8, the assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing.

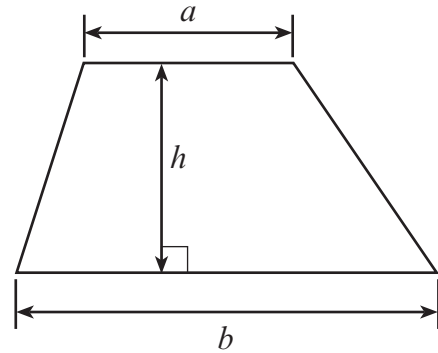
For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	3	
2.	3	
3.	4	
4.	1	
5.	4	
6.	3	
7.	5	
8.	7	
9.	3	
10.	4	
11.	7	
12.	5	
13.	2	
14.	4	
15.	6	
16.	4	
17.	2	
18.	2	
19.	5	
20.	6	
Total	80	



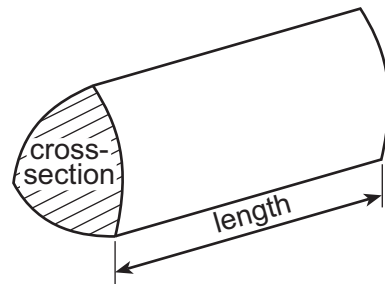
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Formula List – Intermediate Tier

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



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



1. Using **only** the numbers listed below,

120

121

122

123

124

125

126

write down

- (a) a square number,

[1]

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- (b) a cube number,

[1]

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- (c) a multiple of 14.

[1]

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2. Use the formula $18x + 5y = t$ to find the value of y when $x = 2.5$ and $t = 60$.

[3]

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3. (a) Calculate $\sqrt{12 \cdot 3 - 3 \cdot 4} + 15 \cdot 7^2$.
Give your answer correct to 1 decimal place.

[2]

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- (b) Find 13.5% of 63.

[2]

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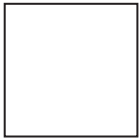
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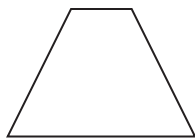
4. Which **one** of the following quadrilaterals has
- rotational symmetry of order 2, **and**
 - 2 lines of symmetry?

Circle the correct shape.

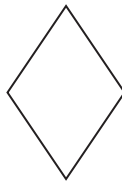
[1]



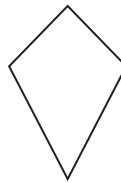
Square



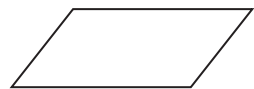
Trapezium



Rhombus



Kite



Parallelogram



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73 hours

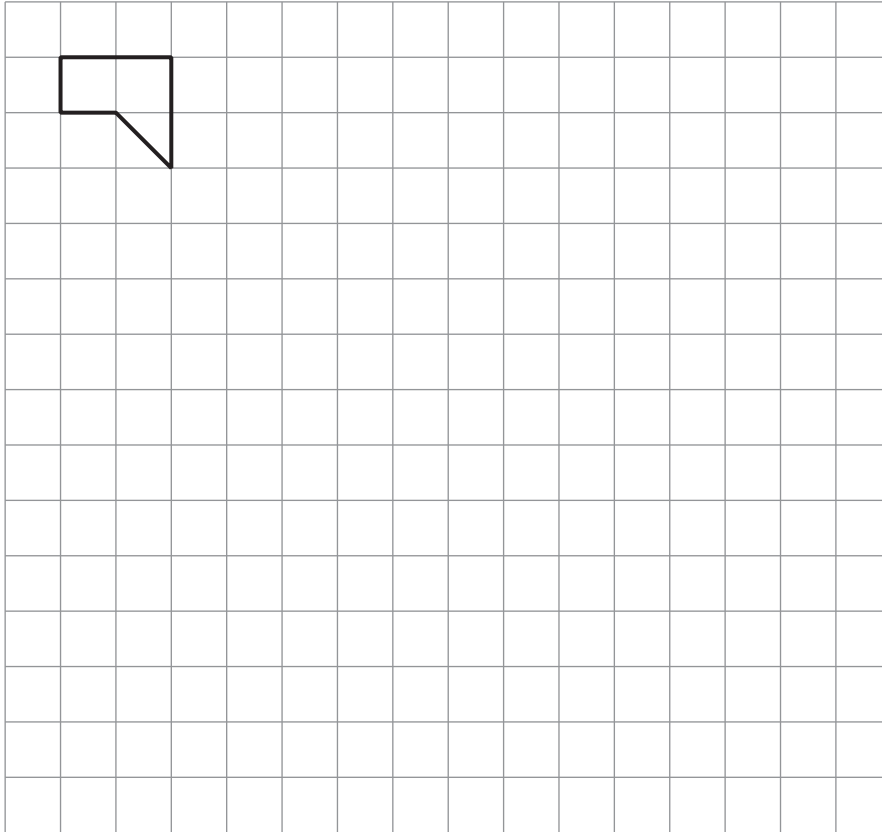
[4]

The mean = days and hours



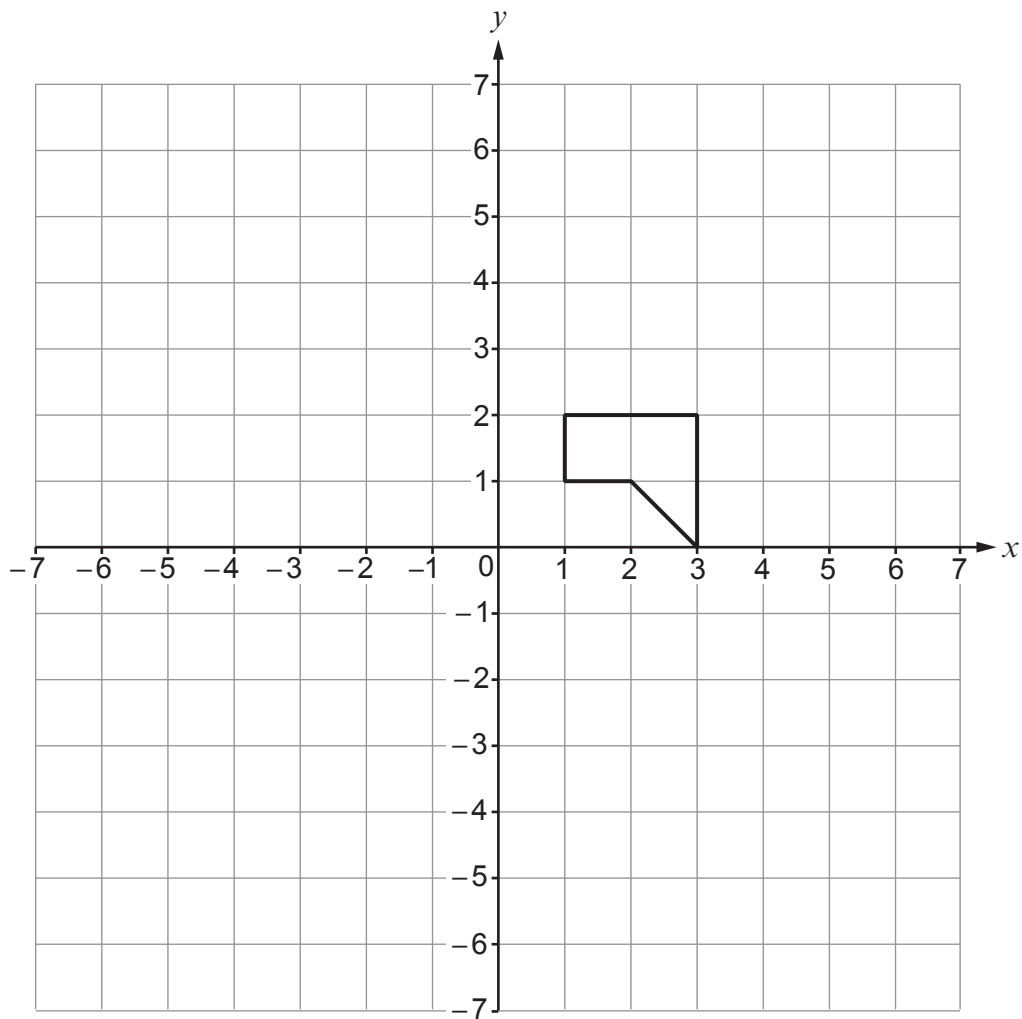
6. (a) Enlarge the shape below by a scale factor of 4.

[2]

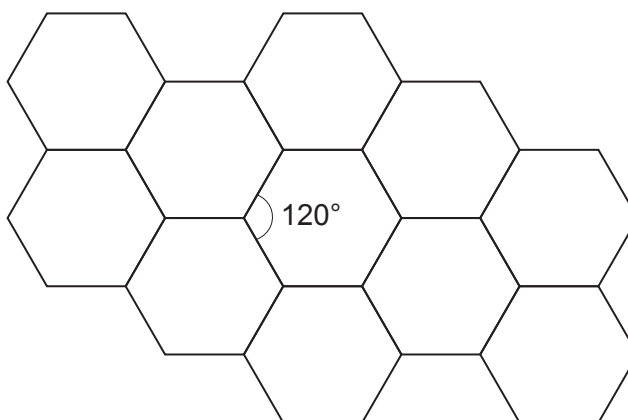


- (b) Translate the shape below 3 squares to the right and 5 squares down.

[1]



7. (a) The diagram below shows some tiles in part of a tessellation. The tiles are all identical regular hexagons. Each of the interior angles is 120° .



Explain why the tiles tessellate.

You must give a reason, based on angle facts, for your answer.

[1]

- (b) Explain why tiles that are identical **regular pentagons** will not tessellate. You must show working to support your explanation.

[4]



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

Two groups of people, Group A and Group B, took part in Adam's survey.

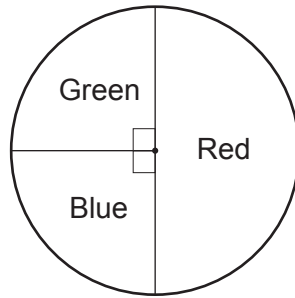
Adam asked each person this question:

"From the colours Red, Blue and Green, which is your favourite colour?"

There are 92 people in Group A.

The results for Group A are shown in the pie chart below.

Group A



The results for Group B are shown in the pictogram below.

Group B

Red	 
Green	 
Blue	

Key:



represents 16 people

Adam chose one person at random from all the people in both groups.

What is the probability that this person chose **Green**?

[5 + 2 OCW]

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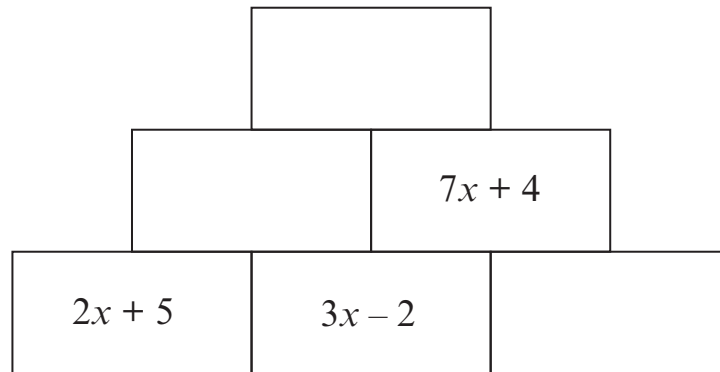
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9.



In the diagram above, the expression in each block in the top two rows is found by using the following rule:

The expression in any block is the sum of the expressions in the
two blocks below it.

Some expressions are already shown.
Use the rule to fill in the empty blocks in the diagram.
You must simplify your answers.

[3]

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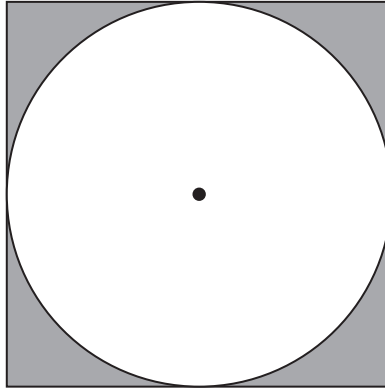
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- The radius of the circle is 5 cm.

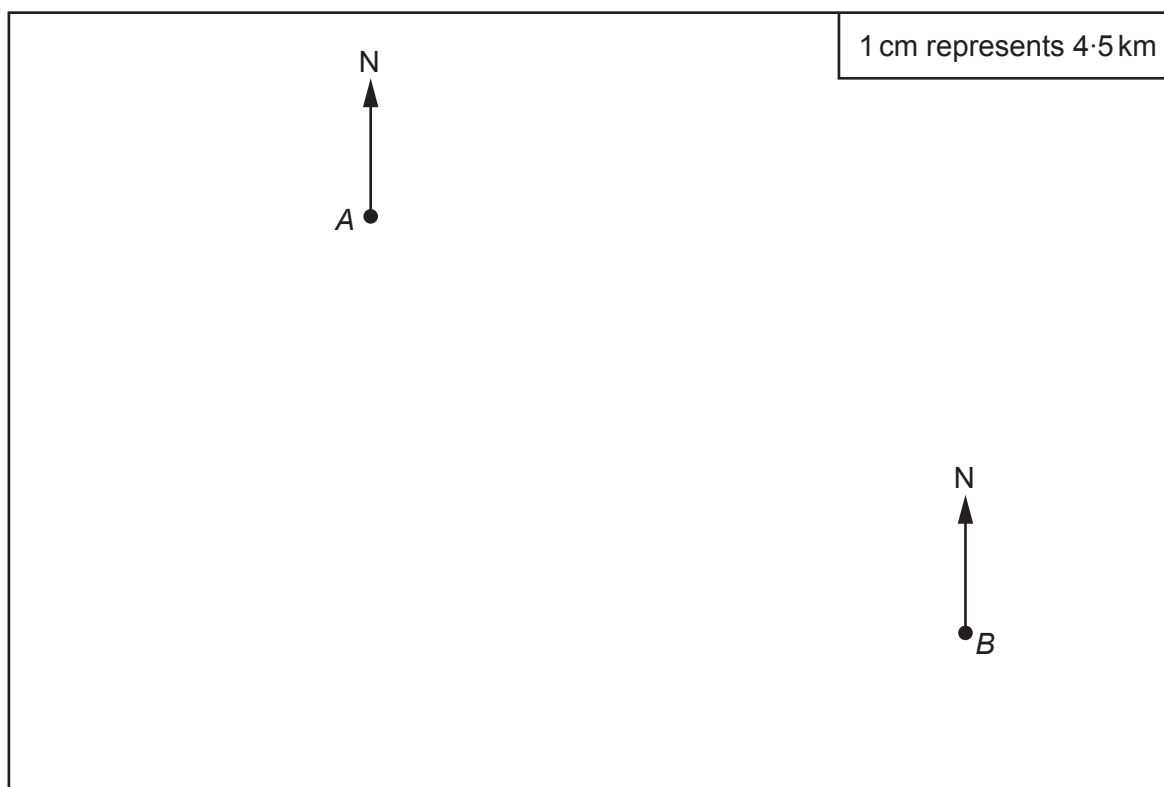


[4]

Total area of the shaded regions =



11. The diagram below shows two towns, *A* and *B*, on a map.
The scale of the map is 1 cm represents 4.5 km.



- (a) Find the straight-line distance from town *A* to town *B*.
Give your answer in kilometres.

[2]

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The straight-line distance from *A* to *B* = km

- (b) Find the bearing of town *A* from town *B*.

[1]

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- (c) On the map, shade the region containing all the points that are:
- closer to town *A* than to town *B*, and
 - less than 27 km from town *B*.

[4]

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A circular spinner divided into five equal sectors. The sectors are labeled with the numbers 1, 2, 3, 4, and 5. An arrow points to sector 4.

100 players each pay £ x to play the game once.
Each player who gets an **even number** on the spinner wins £3.

Find the value of x .
You must show all your working.

[5]



[2]

14. A solution of the equation

$$x^3 + 5x = 25$$

lies between 2 and 3.

Use the method of trial and improvement to find this solution correct to 1 decimal place. You must show all your working.

[4]



15. (a) Calculate the length of PQ .

[3]

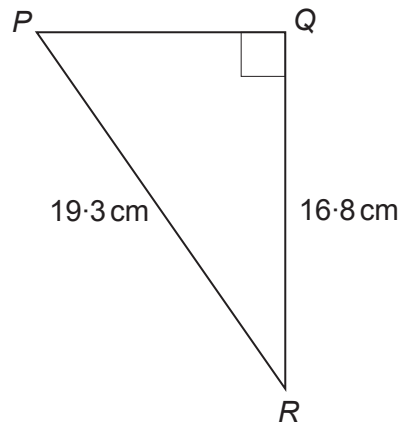


Diagram not drawn to scale

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- (b) Calculate the size of angle x .

[3]

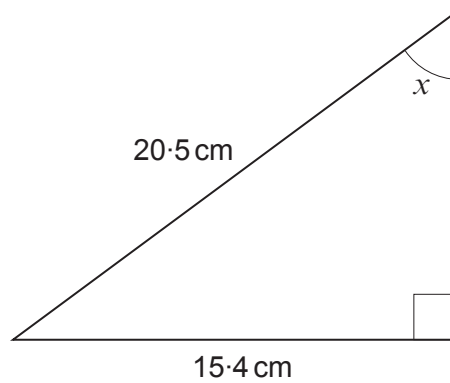


Diagram not drawn to scale

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16. $\frac{3}{7}$ of £180.60 is shared in the ratio 4 : 5.

Calculate the value of the smaller share.
You must show all your working.

[4]

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Smaller share =



17. In the diagram below, the triangles ABC and DBE are **mathematically similar**.
 $CB = 8\text{ cm}$, $DB = 7.5\text{ cm}$, $BE = 5\text{ cm}$ and $\hat{ACB} = \hat{DEB}$.

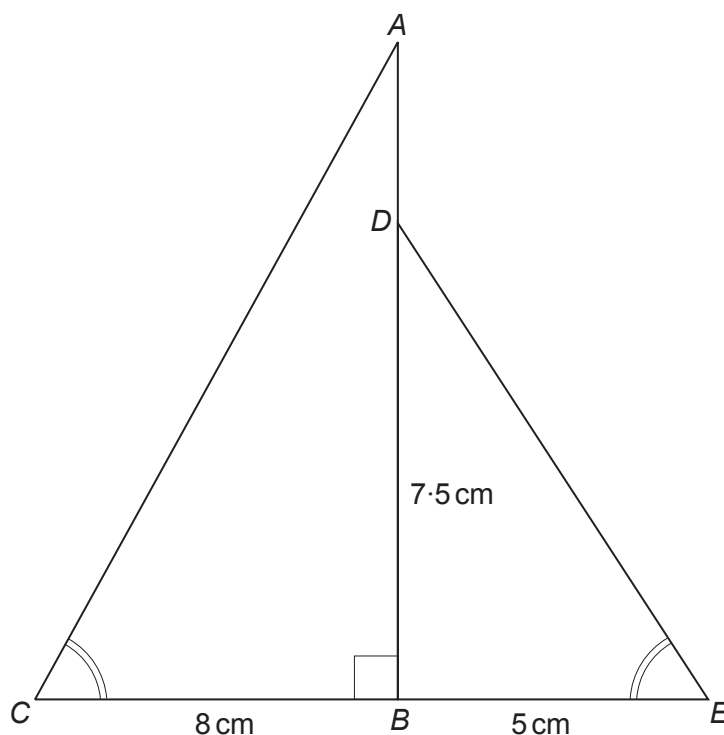


Diagram not drawn to scale

Calculate the length of AB .

[2]

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18. A number has been decreased by 20% to give an answer of 84.
 What was the original number?

[2]

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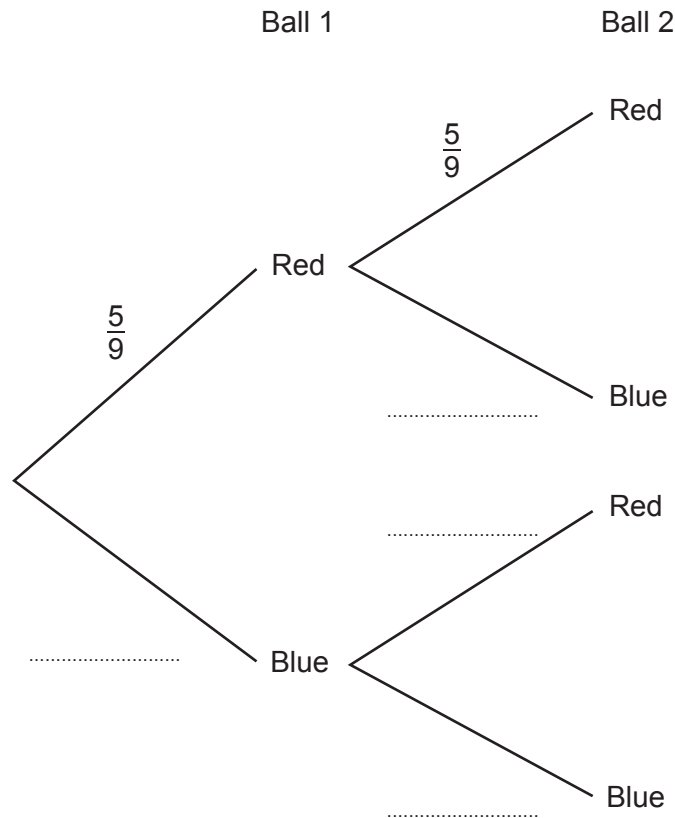
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19. A bag contains 5 red balls and 4 blue balls.
Megan chooses a ball from the bag at random.
She replaces the ball in the bag.
Then she chooses a second ball from the bag at random.

(a) Complete the tree diagram below.

[2]



(b) Find the probability that Megan chooses two balls of the same colour.

[3]

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[6]

END OF PAPER



Examiner
only

