

Surname	Centre Number	Candidate Number
Other Names		0



GCSE

4370/04



S15-4370-04

**MATHEMATICS – LINEAR
PAPER 2
FOUNDATION TIER**

A.M. THURSDAY, 4 June 2015

1 hour 45 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.

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.

You are reminded that assessment will take into account the quality of written communication (including mathematical communication) used in your answer to question **10**.

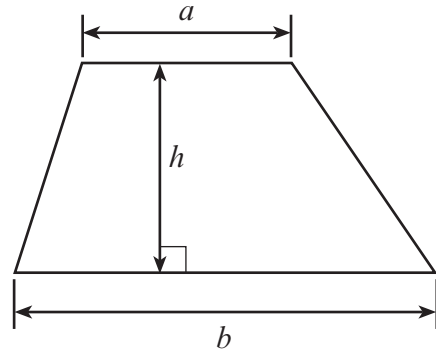
For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	6	
2.	4	
3.	6	
4.	5	
5.	4	
6.	9	
7.	4	
8.	4	
9.	3	
10.	6	
11.	8	
12.	4	
13.	8	
14.	8	
15.	8	
16.	7	
17.	6	
Total	100	



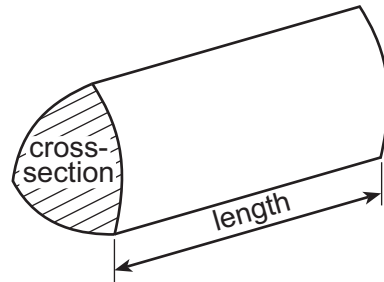
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Formula List

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



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



1. (a) Chris goes shopping. Complete his bill. [4]

Item	Cost
4 litres of milk @ £0.89 per litre	£ 3.56
6 cartons of apple juice @ £2.47 per carton	£
5 packets of biscuits @ £1.67 per packet	£
3 boxes of tea @ £4.49 per box	£
Total	£

- (b) Chris is given a 5% discount.
How much is this discount? [2]

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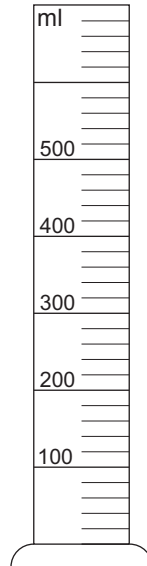
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2. Circle the quantity that is an appropriate estimate for each of the following. [4]

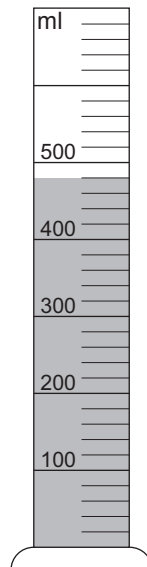
Width of a football pitch	50 km	50 m	50 mm	50 cm
Weight of a man	70 kg	70 g	70 mg	7 kg
Volume of tea in a cup	1 litre	25 cm ³	250 ml	1 ml
Area of a page in a book	3 m ²	300 cm ²	30 mm ²	300 cm ³



3. (a) The diagram shows an empty measuring cylinder with markings in millilitres. Three hundred and twenty millilitres of water are poured into the cylinder. Draw a line on the cylinder to show the water level. [1]



- (b) A very small jug is filled with water. The water is then poured into an **empty** measuring cylinder. This process is carried out a total of six times. The final water level is shown in the diagram. How much water does the jug hold? [3]



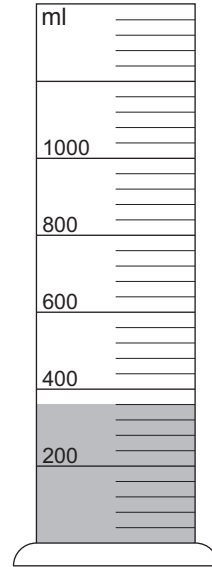
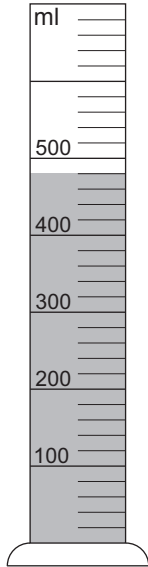
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- (c) The water in the cylinder on the left is to be poured into the cylinder on the right, which already has some water in it. Draw a line on the right-hand cylinder to show the new water level. [2]



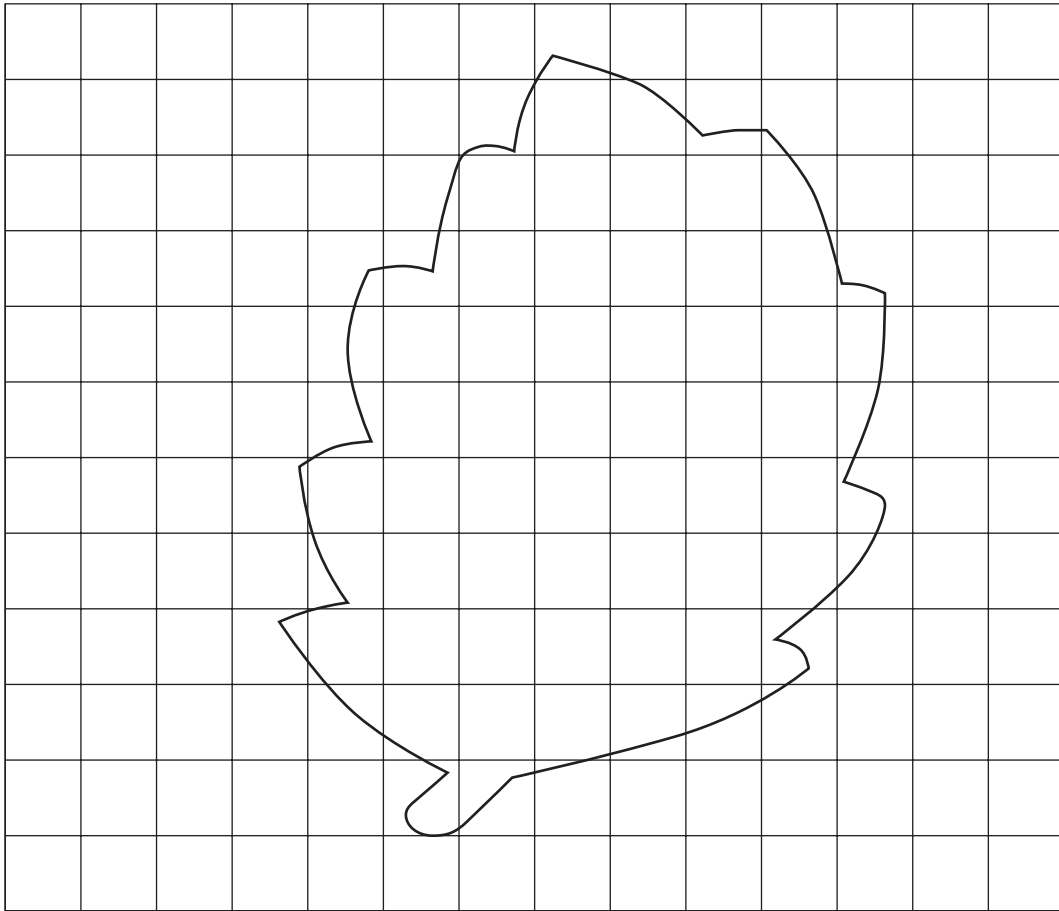
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4. (a)



The above shape is the outline of a leaf.
It is drawn on a square grid where each square represents 4 cm^2 .
Estimate the area of the surface of the leaf.

[3]

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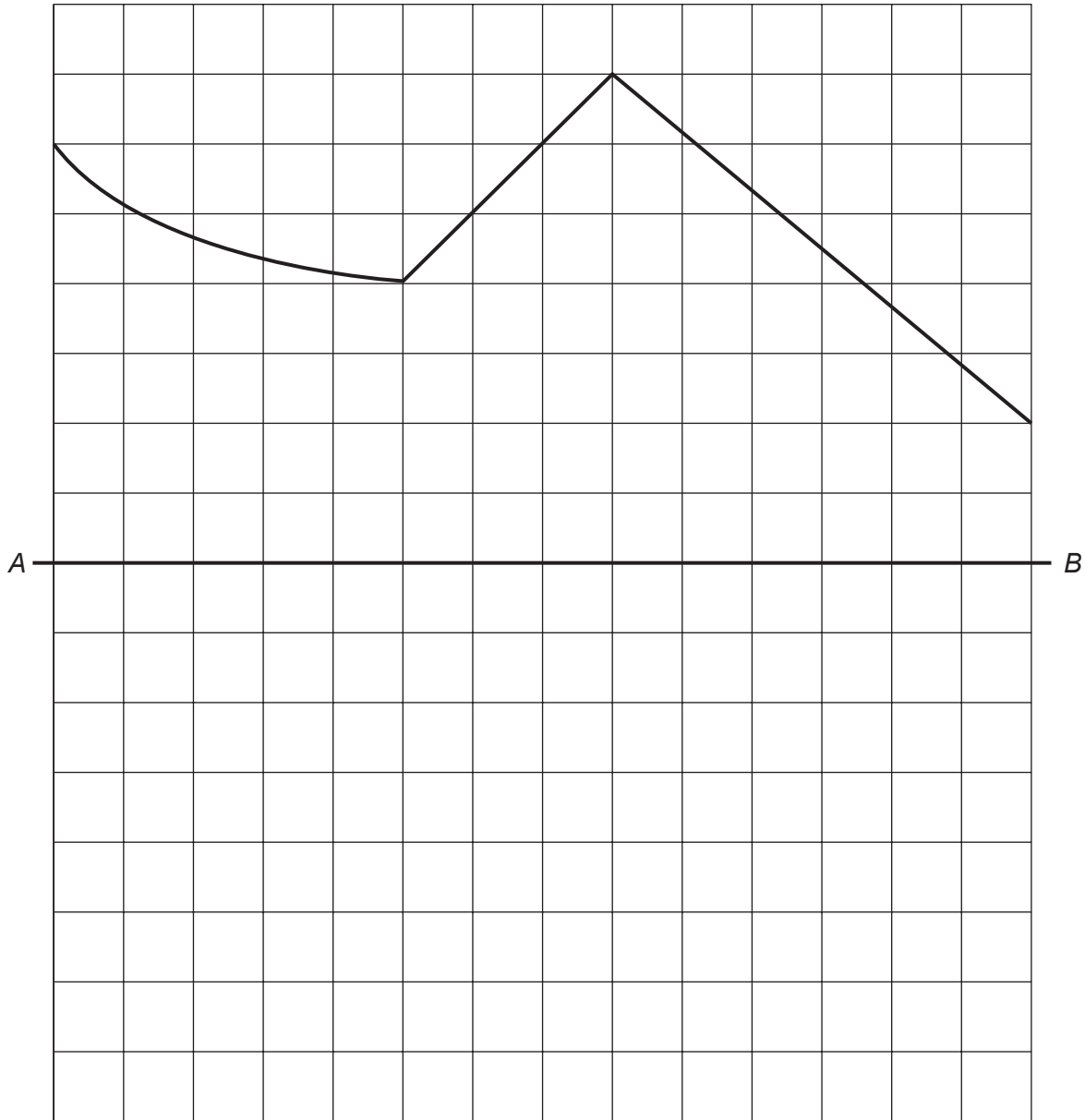
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Area of the surface of the leaf = cm^2

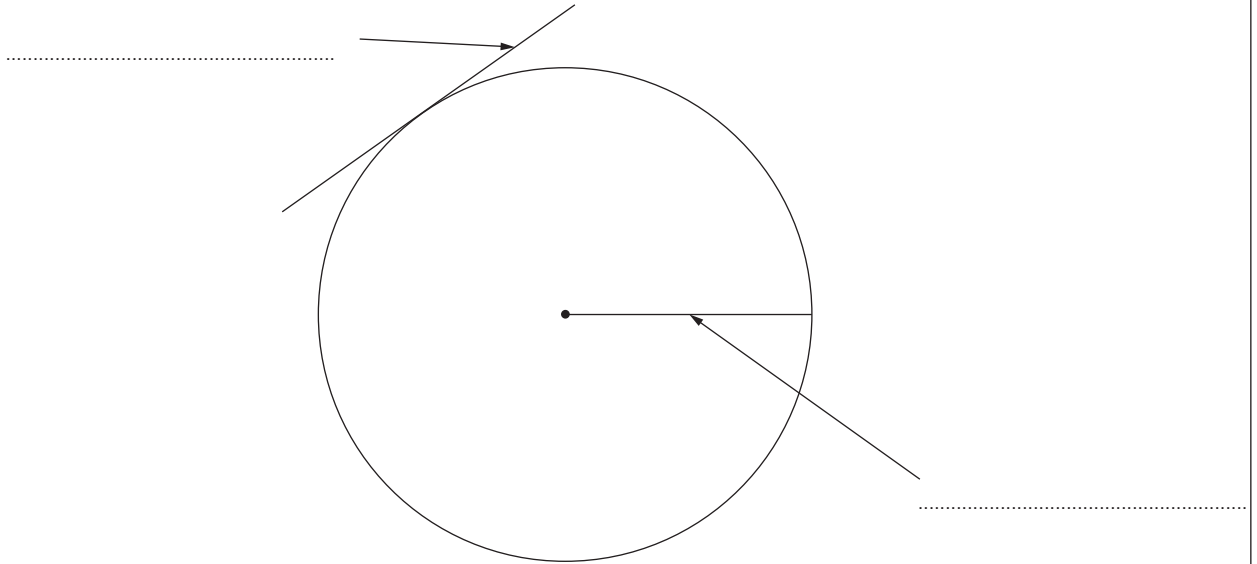


(b) Complete the following figure so that it is symmetrical about the line AB .

[2]

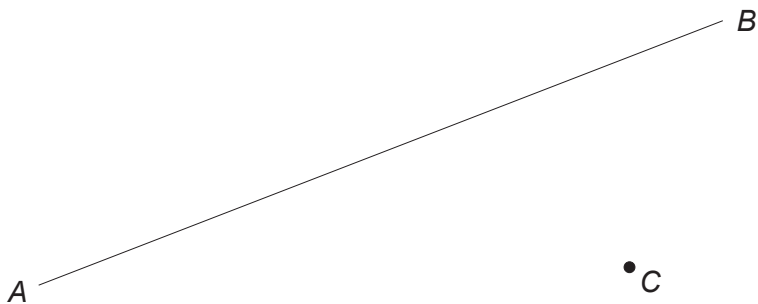


5. (a) Write down the special names of the straight lines shown in the following diagram. [2]



(b) (i) Measure, in centimetres, the length of the line AB . [1]

Length of AB = cm



(ii) Draw a line parallel to AB that passes through C . [1]



6. (a) Draw a circle around all of the following quantities that are equal to $\frac{2}{5}$. [2]

$$\frac{10}{15}$$

0.4

$$\frac{6}{15}$$

$$\frac{8}{10}$$

$$\frac{4}{10}$$

(b) One thousand apples are put into crates.
Each crate can hold 72 apples.
How many crates can be filled and how many apples will be left over? [2]

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(c) What is 7% written as a decimal? [1]

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(d) Calculate 48% of 82.5. [2]

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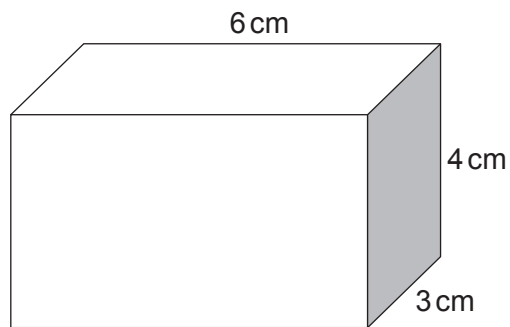
(e) Calculate $\frac{3}{7}$ of 84. [2]

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7. The diagram shows a cuboid with measurements as shown.



Draw an **accurate** net for the cuboid.
A 6 cm by 3 cm face has been drawn for you.

[4]



8. (a) Describe **in words** the rule for continuing each of the following sequences.

(i) 46 41 36 31 26 [1]

Rule:

(ii) 1 -4 16 -64 256 [1]

Rule:

(b) (i) A shirt has b buttons.
Write down, in terms of b , the number of buttons on 10 shirts. [1]

(ii) A total of k blocks are arranged in rows of 5 blocks.
There are no blocks left over.
Write down, in terms of k , the number of rows. [1]



9. (a) Before 2010, the lowest temperature ever recorded on Earth was -89.2°C .
In August 2010, a new record low temperature of -93.2°C was recorded.
What is the difference between these temperatures? [1]

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- (b) On July 2 1936, a temperature of 46°C was recorded in Minnesota, USA.
On February 2 1996, a temperature of -51°C was recorded in Minnesota.
What is the difference between these temperatures? [1]

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- (c) What temperature is mid-way between -12°C and 16°C ? [1]

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10. You will be assessed on the quality of your written communication in this question.

The table below gives the charges for hiring a concrete mixer by the day.

Charge for the first day	Charge per day after the first day
£16.10	£8.15

There are special offers for hiring the concrete mixer for a weekend or from Monday to Friday.

Weekend (Saturday & Sunday)	Week (Monday to Friday)
£22.54	£32.20

James wants to hire a concrete mixer from Monday to Thursday.

How much cheaper is it to hire a concrete mixer for a week (Monday to Friday) than it is to hire it from Monday to Thursday by the day? [6]

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11. The ages of 8 members of a chess club were:

28 15 60 39 47 31 24 32

(a) Find the median of their ages. [2]

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(b) Find the range of their ages. [1]

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(c) Find the mean of their ages. [3]

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(d) A new member, aged 31, joins the club.
What will happen to the mean age?
Tick (✓) the appropriate box. [2]

The mean will increase	<input type="checkbox"/>
The mean will stay the same	<input type="checkbox"/>
The mean will decrease	<input type="checkbox"/>

Explain your choice.

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12. Theo went on holiday to Brunei.

- (a) He changed £950 into Brunei dollars (BND) when the exchange rate was £1 = 2.12 BND.
How many Brunei dollars (BND) did he receive? [2]

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- (b) Whilst on holiday, he went on a trip which cost 180 BND.
What was the cost of the trip, in pounds? [2]

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13.

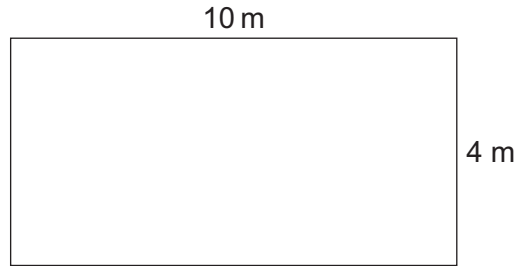


Diagram not drawn to scale

Denise's room is rectangular, measuring 10 metres by 4 metres.

She wants to cover the floor with either carpet tiles or wood strips.

Carpet tiles are square-shaped, measuring 50 cm by 50 cm. They come in packs of 32 and cost £40 per pack.

Wood strips are rectangular, measuring 2 m by 25 cm. They come in packs of 8 and cost £22 per pack.

Which type of flooring would be the cheaper?

You must show all your working.

[8]

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14. (a) Solve the following equation.

[3]

$$2(30 - x) = 44$$

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(b) Simplify $3(4a - 2c) - 2(2a + 4c)$.

[2]

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(c) Find all integer values of n that satisfy the inequality.

[3]

$$5 \leq 3n < 18$$

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15. The table below shows some comparative data for 3 different European airlines.



	European Airlines		
	FreeFlight	Best2Fly	GoJet
Percentage of flights arriving on time, based on 30 000 flights	85%	88%	92%
Number of complaints, per 1000 passengers	0.62	0.68	0.78
Number of lost suitcases, per 1000 passengers	0.36	0.24	0.42

Use the information given in the table to answer the following questions.

- (a) FreeFlight, Best2Fly and GoJet all claim to be the best of these 3 airlines. Complete the following statements. [2]

'FreeFlight are the best of these 3 airlines because

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'Best2Fly are the best of these 3 airlines because

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'GoJet are the best of these 3 airlines because

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(b) How many of the 30 000 flights with Best2Fly were late? [2]

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(c) FreeFlight and GoJet both expect to carry 500 000 passengers next month.
How many more suitcases would you expect GoJet to lose than FreeFlight next month? [3]

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(d) Write down an estimate for the probability that a flight with GoJet does not arrive on time.
Express your answer as a percentage. [1]

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16. The diagram below shows a rectangle and a triangle joined by a common side BD .

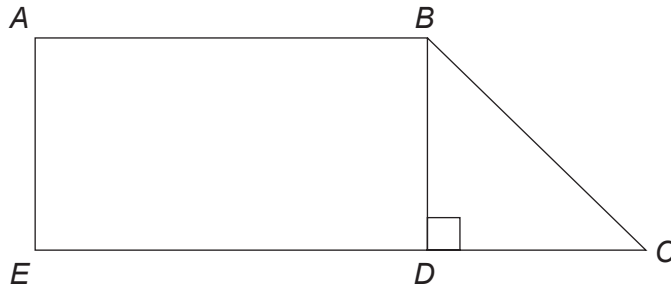


Diagram not drawn to scale

The area of rectangle $ABDE$ is 3900 cm^2 , $ED = 75 \text{ cm}$ and $DC = 25 \text{ cm}$.

Calculate each of the following:

- the area of triangle BDC , and
- the length of BC .

You must show all your working.

[7]

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Area of triangle *BDC* is

Length of *BC* is



17. A machine is used to pack boxes of peaches.



There should be exactly 8 peaches in each box.

To check the machine, 10 boxes of peaches are selected on the hour for 5 consecutive hours. Each hour the number of boxes containing exactly 8 peaches is recorded.

	1 a.m.	2 a.m.	3 a.m.	4 a.m.	5 a.m.
Number of the 10 boxes with exactly 8 peaches	8	10	7	7	9

(a) The company prints a label for each box.

Contains at least 8 peaches

Explain why this label **may** not be suitable to use on the boxes of peaches.

[1]

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(b) It is decided to record and plot the relative frequencies for the information shown in the previous table.

(i) Complete the table below.

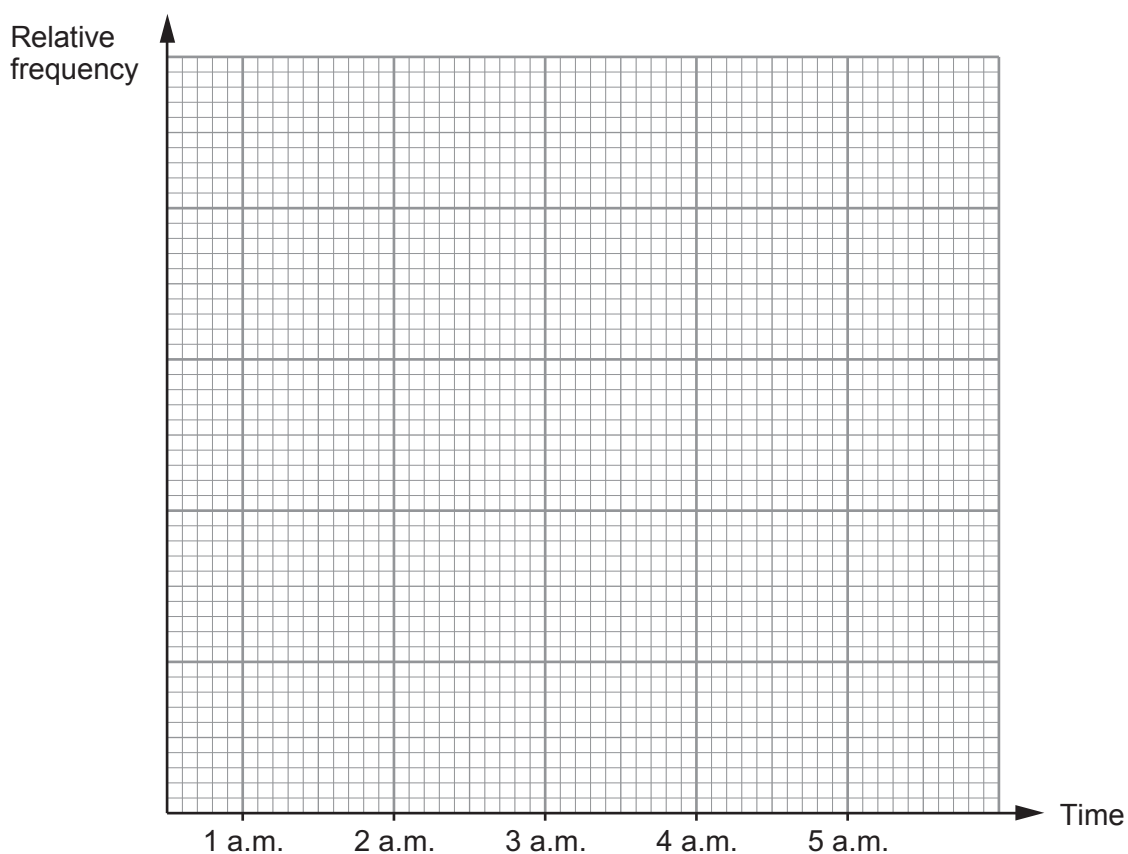
Relative frequency must be recorded to 2 decimal places.

[2]

	1 a.m.	2 a.m.	3 a.m.	4 a.m.	5 a.m.
Total number of boxes with exactly 8 peaches	8	18	25	32	41
Total number of boxes checked	10	20	30		
Relative frequency	0.80				

(ii) Use the graph paper below to plot the relative frequencies.

[2]



(iii) A box of peaches is selected at random.

What is the best estimate of the probability that the box contains exactly 8 peaches?

[1]

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END OF PAPER



