wjec cbac

GCSE

4353/01

S15-4353-01

MATHEMATICS (UNITISED SCHEME)
UNIT 3: Calculator-Allowed Mathematics
FOUNDATION TIER

A.M. MONDAY, 8 June 2015

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.

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 **8**.

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

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Formula List

Area of trapezium $= \frac{1}{2}(a + b)h$
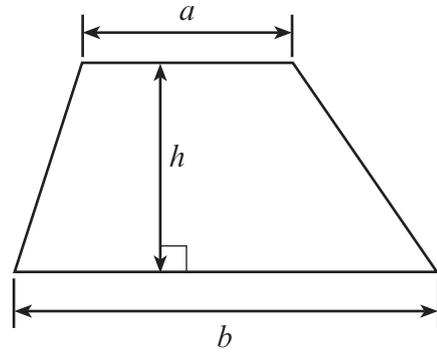
Volume of prism = area of cross-section × length

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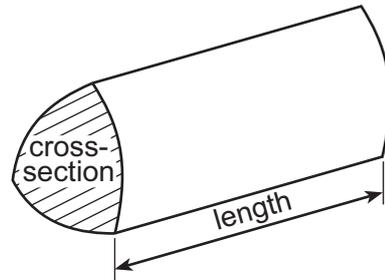
1. *(a)* Abby buys some items from a chemist to take on her summer holiday.
Complete her bill. [4]

Items	Cost
3 bottles of suntan lotion at £6.25 per bottle	£
2 packets of travel-sickness tablets at 89p per packet	£
6 items of cosmetics at £4 for 3 items	£
Total	£

(b) Abby collects points from the chemist's reward scheme.
She receives 100 points for every complete £5 that she spends.
How many points did she receive? [2]

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(c) Abby paid with two twenty-pound notes.
How much change should she receive? [2]

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2. *(a)* Write 31 562 correct to the nearest thousand. [1]

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(b) Write 62·839 correct to 1 decimal place. [1]

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3. The star shape below is to be used to make a poster for a talent competition.
The star has been drawn on a grid.
Each square on the grid has an area of $1\,cm^2$.
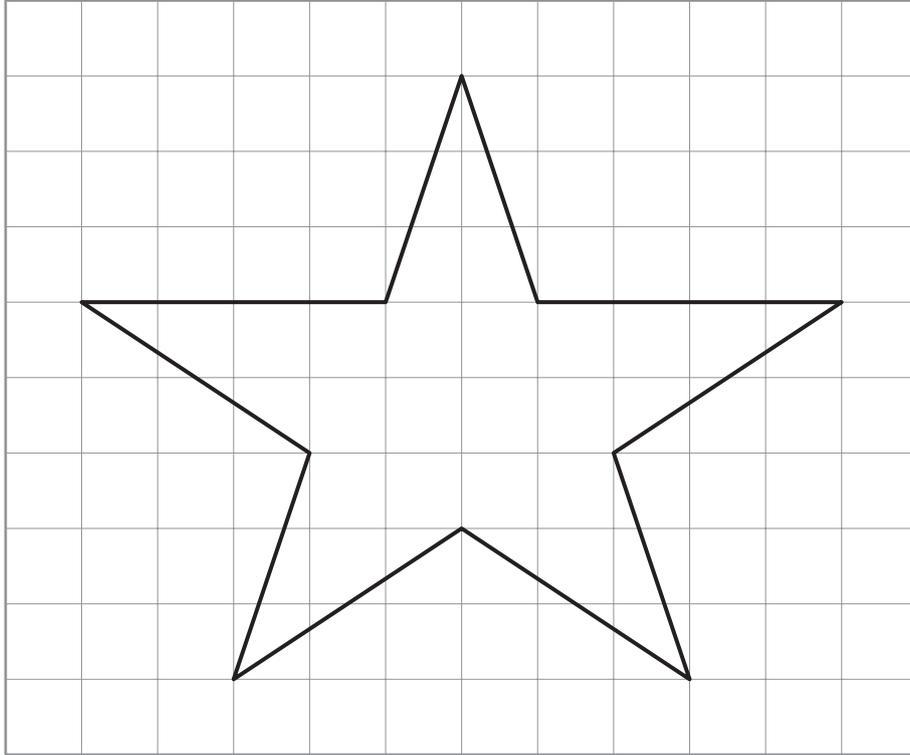
Find the approximate area of the star. [2]

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4. A piece of wood is 32 cm long.
Alan wants to drill two holes in the wood at points *A* and *B*, where *AB* = 18 cm.
The distances *PA* and *QB* must be equal.

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       ←———————————— 32 cm ————————————→
       ┌─────────────────────────────────────┐
  P •  │      A •                    B •      │ • Q
       └─────────────────────────────────────┘
              ←———— 18 cm ————→
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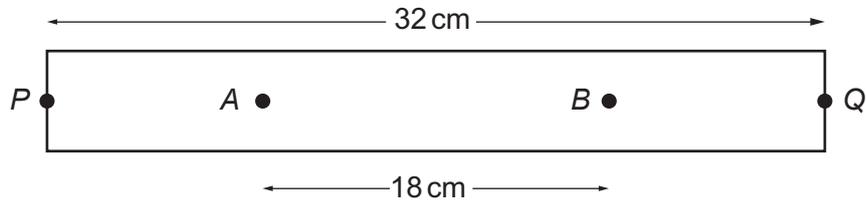
Diagram not drawn to scale

Calculate the length *PA*. [2]

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5.
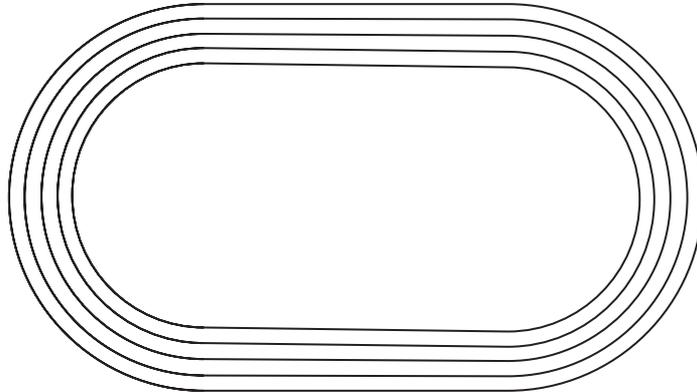
A single lap of an athletics track is 400 metres.
How many laps will a person run in a two kilometre race? [2]

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6. **"Most young people eat five or more pieces of fruit or vegetables per day."**

Jared carried out a survey at his school to investigate this statement.
On Tuesday, he asked students at his school for the number of portions of fruit or vegetables that they had eaten on Monday.
His results are shown in the graph below.
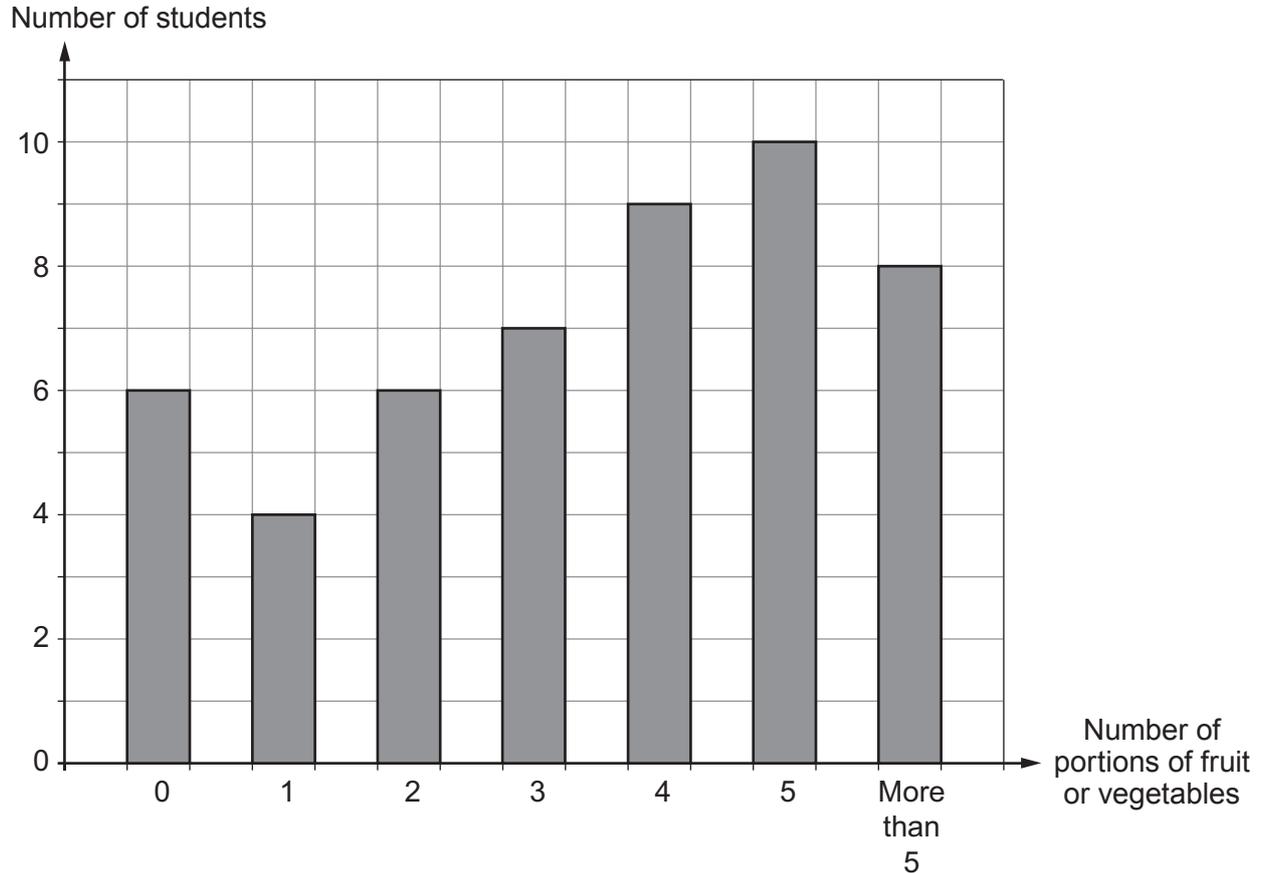
(a) How many students said that they did not eat any portions of fruit or vegetables? [1]

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(b) How many students took part in the survey? [2]

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(c) What fraction of these students said that they had eaten five portions or more than five portions of fruit or vegetables? [2]

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On Tuesday, Jared also went to the local sports centre and asked 36 young members the same question.
He displayed his results in a pie chart.
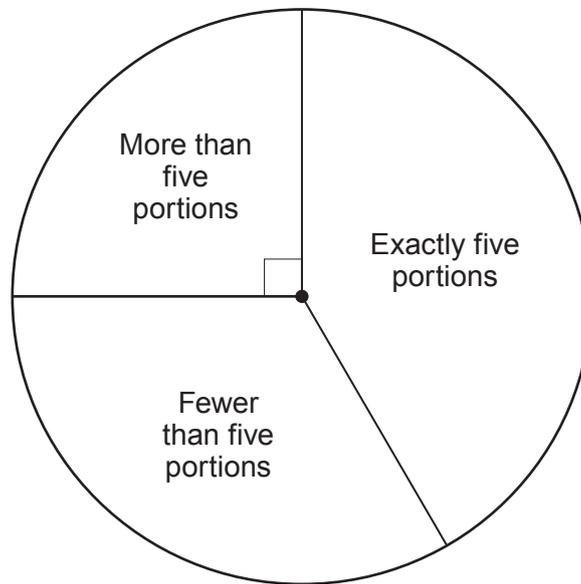
(d) What fraction of these members said they ate **fewer than** five portions of fruit or vegetables? [1]

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(e) How many of these members said they ate five portions or more than five portions of fruit or vegetables? [2]

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(f) Based upon the results in the graph and the pie chart, what conclusion could Jared make about the statement that he is investigating? [1]

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7. The perimeter of the triangle is 30 cm.
The perimeter of the rectangle is also 30 cm.
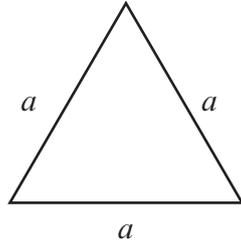
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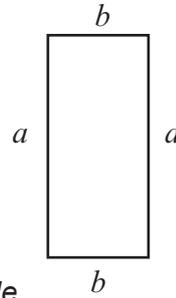
Use this information to find the area of the square below. [4]
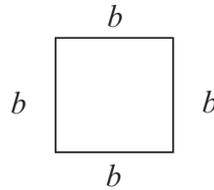
Diagram not drawn to scale

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Area of the square = ... cm²

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

Ali pays £15 per month for his mobile phone contract.

His contract has a monthly allowance of 120 minutes of call time and 400 standard text messages.

If Ali goes over his allowance he must pay extra charges as well as his £15 contract price.

<div style="border:1px solid black; text-align:center;">

EXTRA CHARGES

Extra call time
35 pence per minute

Extra standard text messages
12 pence per message

</div>

Last month Ali used 150 minutes of call time and sent 490 standard text messages.

Ali is offered a new contract with **double** the allowance of minutes and **double** the allowance of standard text messages for **double** the original contract price.

Using only last month's information, decide whether Ali should accept the new contract.

Give reasons for your answer, showing all your calculations.   [7]

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9. Gordon is planning to cook a large turkey for a dinner party.
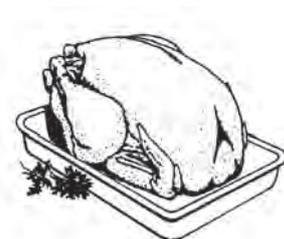
He has the following information.

- The turkey weighs 6·75 kg.
- To calculate the cooking time for a turkey of this size, allow 20 minutes for every 450 grams and add on an extra 25 minutes to finish.

Calculate the cooking time for this turkey. Give your answer in hours and minutes. [5]

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10. *(a)* Solve the equation $2x - 5 = 11$. [2]

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(b) Given that $A = 4B + 6C$, calculate the value of C when $A = 42$ and $B = 3$. [3]

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11. Ivan, Dylan and Joe live in the same building.
The front of the building needs painting and the three men share the cost between them.

Ivan pays $\frac{1}{4}$ of the cost and Dylan pays $\frac{1}{8}$ of the cost.

Joe pays £100 which is the rest of the cost.

What is the total cost of painting the front of the building? [4]

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(4353-01) **Turn over.**

12. *(a)* The diagram shows a quadrilateral.
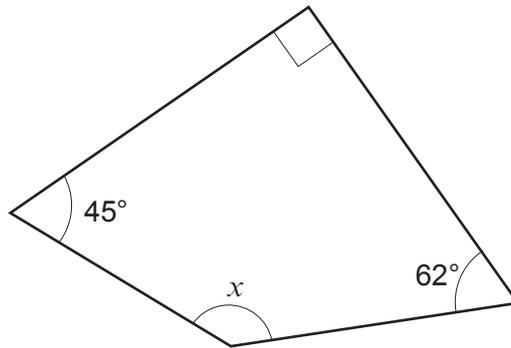
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Find the size of angle x. [2]

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(b) In the pentagon below, the sides have been extended to create angles a, b, c, d and e.
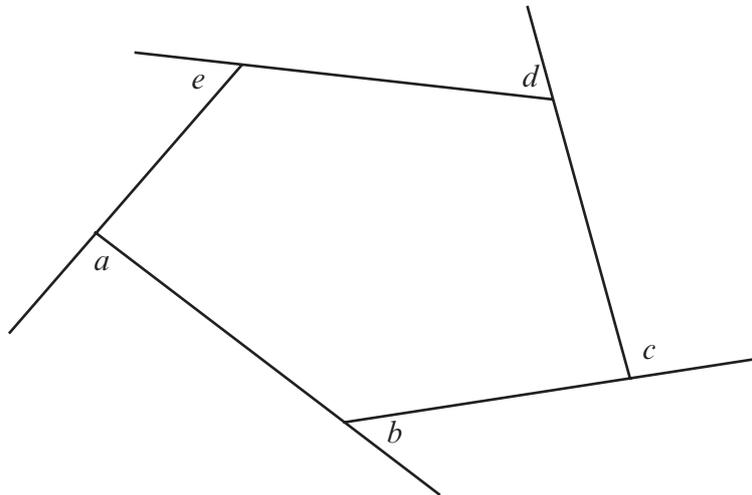
Diagram not drawn to scale

Write down the value of $a + b + c + d + e$. [1]

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13. A post office driver travels from Swansea to Aberystwyth to deliver a parcel.
His journey is shown on the travel graph below.

Distance from Swansea (miles)
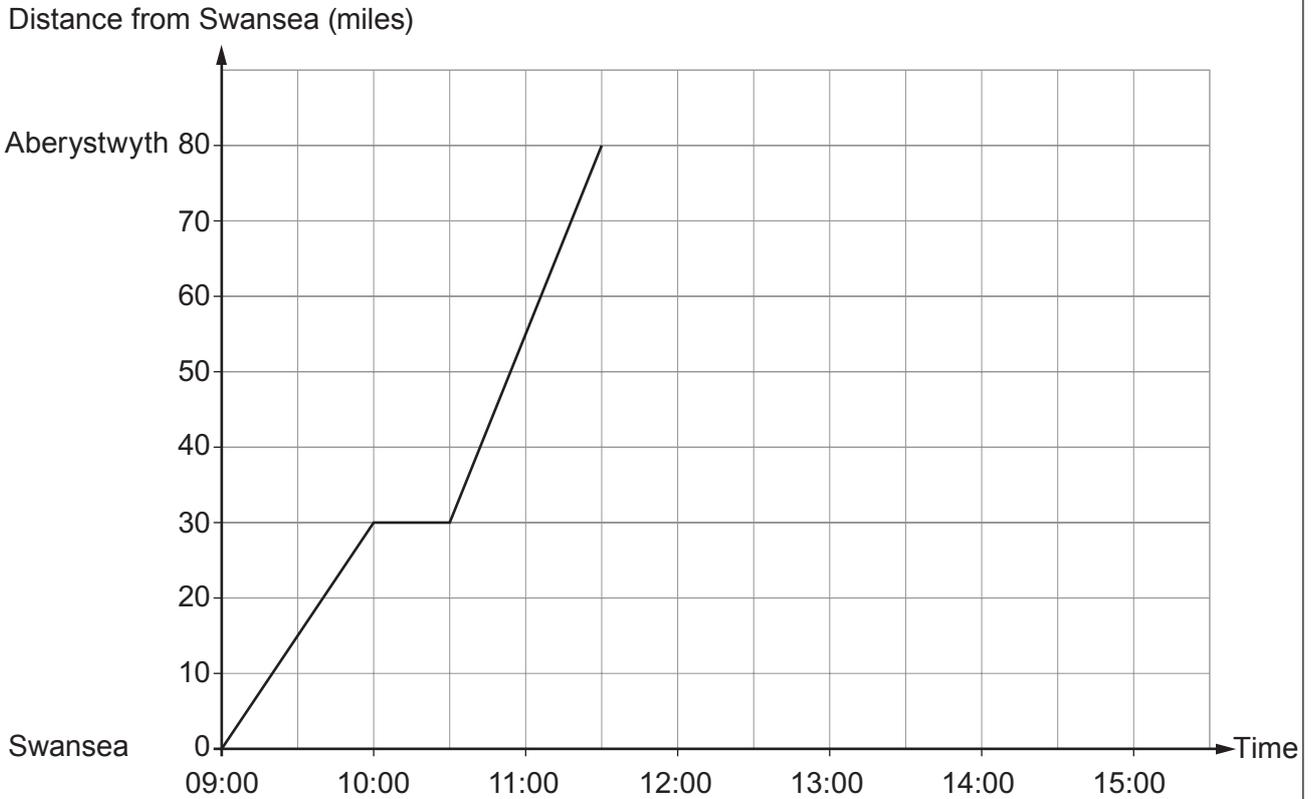
(a) The driver took a break in his journey at a service station.
For how long did he stop at the service station? [1]

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(b) How far from Aberystwyth was the service station? [1]

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(c) The driver stayed in Aberystwyth for one and a half hours. He then drove back to Swansea
at a constant speed, arriving back at Swansea at 15:00.
Complete the graph to show this information. [2]

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(d) What was the driver's average speed on his return journey? [2]

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(4353-01) **Turn over.**

14. Calculate the area of the triangle.
State the units of your answer. [3]
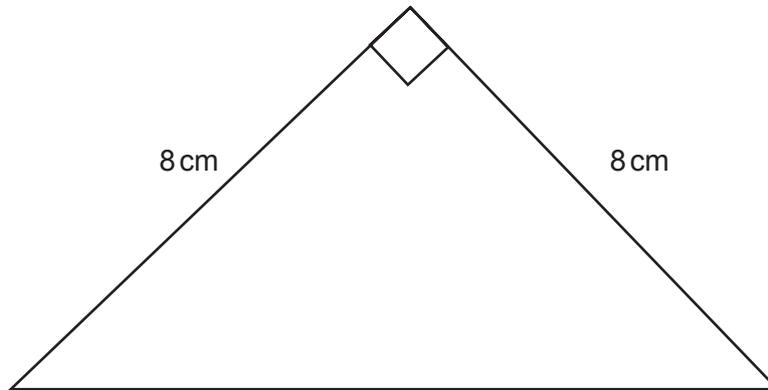
Diagram not drawn to scale

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15. A packet contains cake mixture weighing 385 g.
The mixture is made up of only flour, sugar and raisins. The weight of the flour is twice the weight of the sugar, and the weight of the sugar is twice the weight of the raisins.
Calculate the weight of flour, sugar and raisins in the packet. [4]

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Flour: .... g   Sugar: .... g   Raisins: .... g

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16. *ABCD* represents a rectangular side of a box.
X is the midpoint of the edge *CD*.
The box is rotated clockwise about point *A* until *B* comes into contact with the ground.
Accurately draw the new position of *ABCD* and the locus of the point *X* as the box rotates about *A*. [3]

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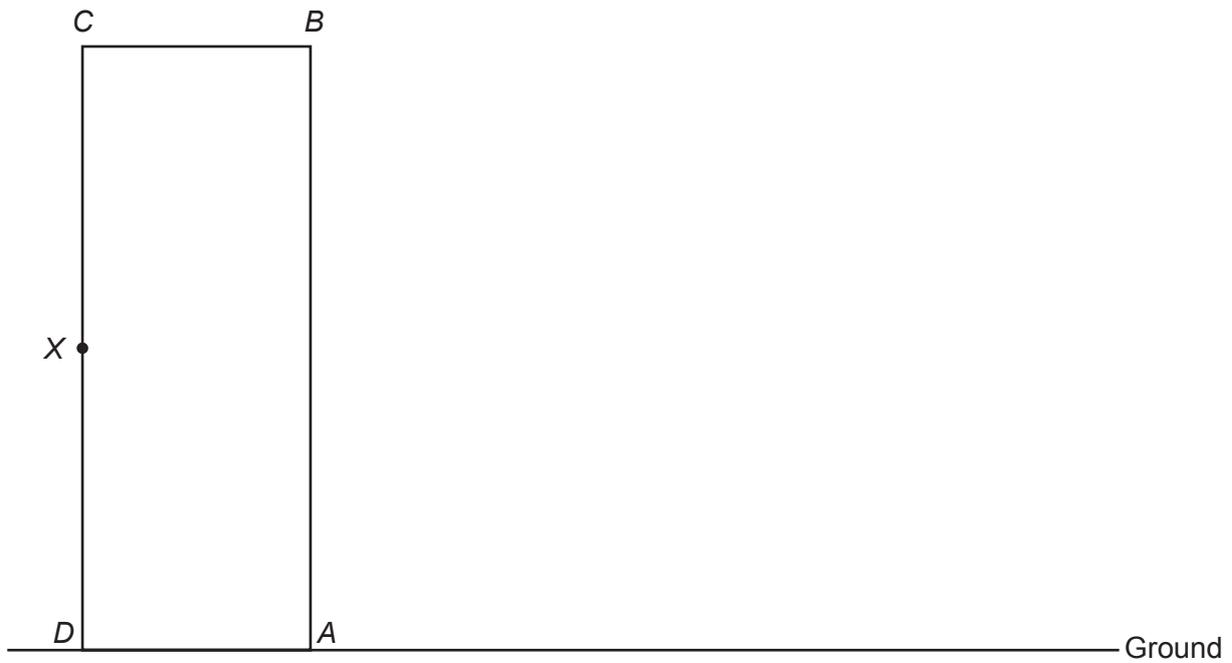
17. A group of pupils was timed in completing a maths test. The results are shown in the grouped frequency table below.

Time, t (minutes)	Number of pupils
$0 < t \leqslant 5$	19
$5 < t \leqslant 10$	17
$10 < t \leqslant 15$	10
$15 < t \leqslant 20$	5
$20 < t \leqslant 25$	2

(a) Draw a grouped frequency diagram to illustrate these results. [2]

Number of pupils

Time, t (minutes)

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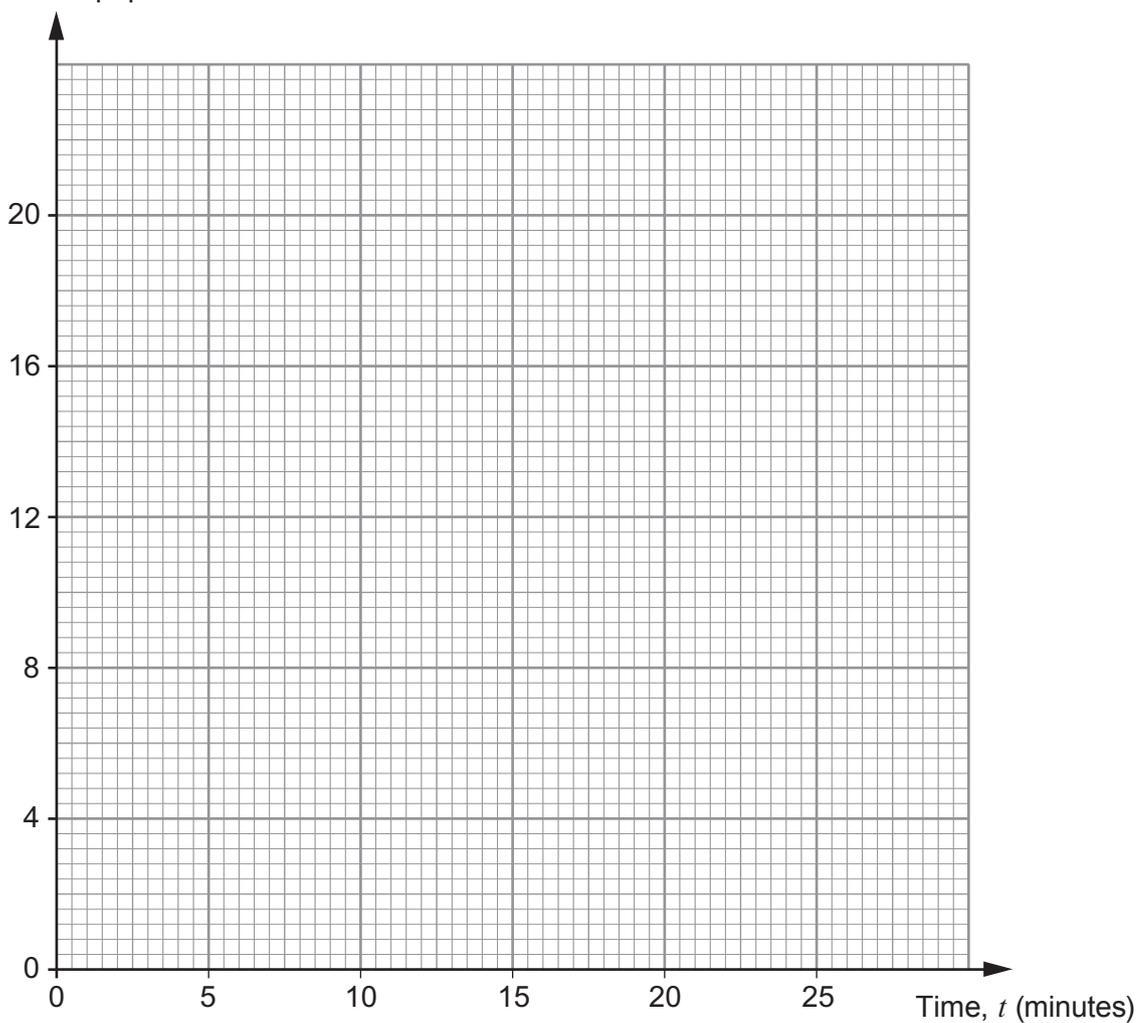
(b) Calculate an estimate of the mean time taken to complete the test. [4]

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(c) Write down the modal group. [1]

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18.

8·6 cm

x

16·5 cm
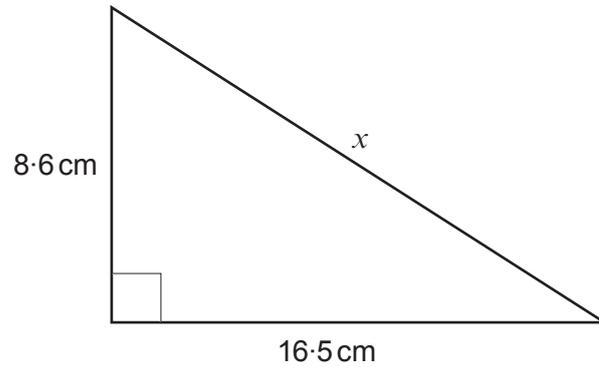
Diagram not drawn to scale

(a)   Gwen is asked to calculate the length x in the triangle above.

Her answer is 14·1 cm.

Without calculating x, explain why Gwen's answer cannot be correct.   [1]

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(b)   Calculate the length x.   [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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