2026.S32

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Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Cycle Final Examination 2026

Mathematics

Ordinary Level

Friday 5 June Afternoon 1:30 - 3:30

270 marks

Examination Number

Date of Birth For example, 3rd February 2005 is entered as 03 02 05

Centre Stamp

Instructions

There are 13 questions on this examination paper. Answer **all** questions.

Questions do not necessarily carry equal marks. To help you manage your time during this examination, a maximum time for each question is suggested. If you remain within these times you should have about 10 minutes left to review your work.

Write your Examination Number in the box on the front cover.

Write your answers in blue or black pen. You may use pencil in graphs and diagrams only.

This examination booklet will be scanned and your work will be presented to an examiner on screen. Anything that you write outside of the answer areas may not be seen by the examiner.

Write all answers into this booklet. There is space for extra work at the back of the booklet.
If you need to use it, label any extra work clearly with the question number and part.

The superintendent will give you a copy of the *Formulae and Tables* booklet. You must return it at the end of the examination. You are not allowed to bring your own copy into the examination.

In general, diagrams are not to scale.

You may lose marks if your solutions do not include supporting work.

You may lose marks if you do not include the appropriate units of measurement, where relevant.

You may lose marks if you do not give your answers in simplest form, where relevant.

Write the make and model of your calculator(s) here:

Question 1 **(Suggested maximum time: 5 minutes)**

(a) Find the value of each of the following:

(i) $1851 + 175$

(ii) $5{\cdot}8 \times 8$

(iii) $48 \div (7 - 5)$

(b) What number is halfway between 8 and 14?

(c) Find the Lowest Common Multiple (LCM) of 5 and 6.

LCM = _____

Question 2 **(Suggested maximum time: 10 minutes)**

(a) Parker goes to the shopping centre. The table below shows some of the items he buys.

Item	**Cost** (€)
1 t-shirt at €9·50	
1 schoolbag at €15·95	
2 sweatshirts at €23·95 each	
Total cost:	

(i) Fill in the table above to find the **total cost** of these items.

(ii) Parker also buys a hat. In total he spends €83·35.
Parker pays using one €50 note and two €20 notes.

Work out how much change he gets.

(b) Parker has lunch while at the shopping centre. The menu is shown below.

Main Course
Burger
Chicken
Salmon

Dessert
Apple Crumble
Brownie
Cheesecake
Ice-cream

(i) Parker chooses one main course and one dessert from the menu.
For example, one choice would be burger and apple crumble.

Write down **two** more possible choices.

(ii) Find the total number of **different** choices of lunch that are possible if he chooses one main course and one dessert.

Question 3 **(Suggested maximum time: 10 minutes)**

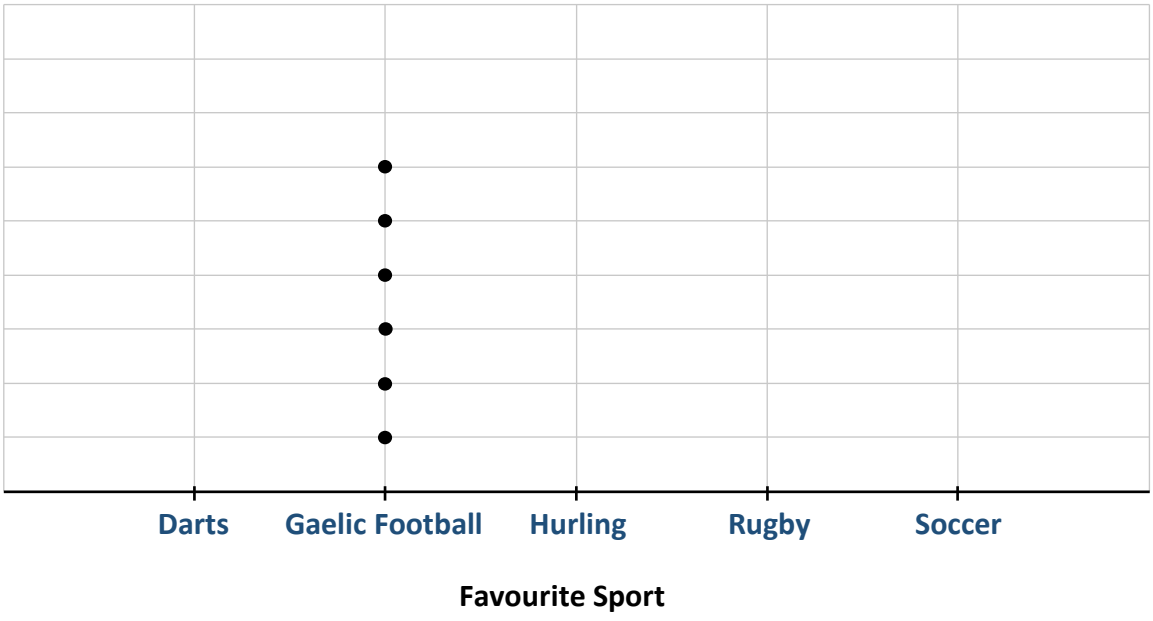
In a survey, 30 students were asked to choose their favourite sport to watch on television.
The results are shown below.

Darts	Darts	Gaelic Football	Hurling	Hurling	Rugby
Soccer	Soccer	Gaelic Football	Gaelic Football	Darts	Soccer
Darts	Rugby	Rugby	Hurling	Gaelic Football	Darts
Gaelic Football	Soccer	Darts	Darts	Soccer	Hurling
Gaelic Football	Rugby	Darts	Hurling	Rugby	Soccer

(a) **(i)** Complete the table below to show how many students chose each sport.

Favourite Sport	Darts	Gaelic Football	Hurling	Rugby	Soccer
Number of students		6	5		

(ii) In the line plot below, each student is represented by a dot.
Complete the line plot to show the information from the table above.



(b) **(i)** Which measure of centre – the mean, the median, or the mode – can you find for this data?

Answer: (Tick (✓) **one** box only)

Mean	Median	Mode
☐	☐	☐

In the box below, write the value of this measure of centre for the data.

Value of measure of centre: ☐

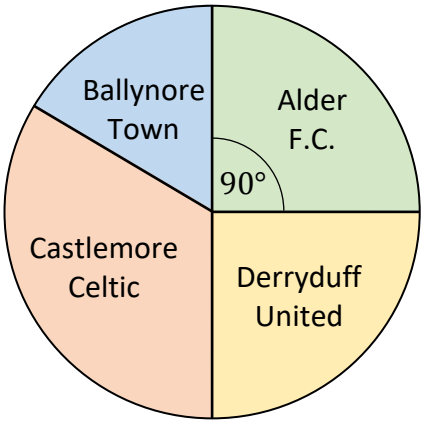
(ii) This survey was carried out during the World Darts Championship.
Do you think this had an effect on the results? Give a reason for your answer.

Answer: (Tick (✓) **one** box only)

Yes	No
☐	☐

Reason:

(c) 60 other students were asked to choose their favourite soccer team. The pie chart on the right shows the results of the survey.



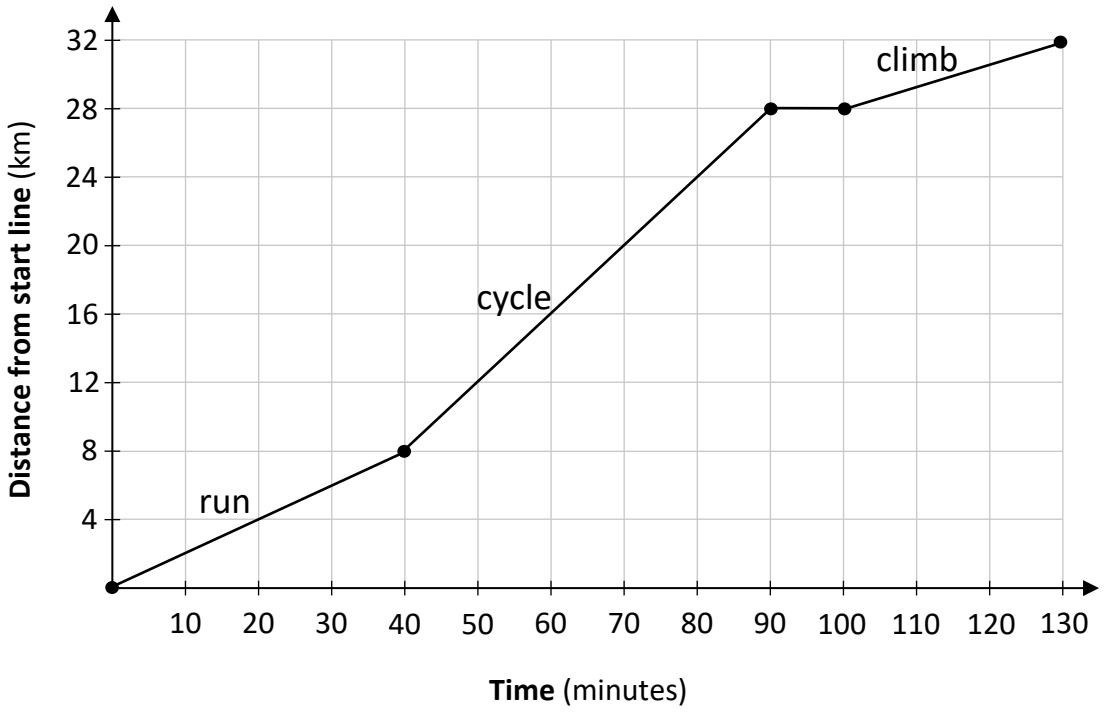
(i) Use a protractor to find the sizes of the three missing pie chart angles.
Write your answer in the appropriate space in the table below.

Team	Alder F.C.	Ballynore Town	Castlemore Celtic	Derryduff United
Angle	90°			

(ii) Work out how many students chose **Alder F.C.** as their favourite team.
Remember that there were 60 students in total.

Question 4 **(Suggested maximum time: 10 minutes)**

Aileen took part in an adventure race.
The race included a run, a cycle, and a mountain climb.
The graph below shows Aileen's distance from the start line, along the route travelled, during the race.



(a) Use the information in the graph to answer parts **(a)(i)** to **(a)(iv)**.

(i) What was the **total distance** of the race?

(ii) Aileen stopped for a break after the cycle.
For how many minutes was she stopped?

(iii) Aileen started the race at 9:00 a.m.
At what time did she finish the race?

(iv) In which part of the race was Aileen travelling the **fastest**?
Give a reason for your answer based on the information in the graph.

Fastest Part:	run	cycle	climb
(Tick (✓) **one** box only)	☐	☐	☐

Reason:

(b) Aileen completed the **climb** in 30 minutes.

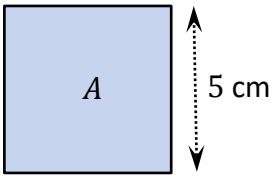
(i) Write 30 minutes as a fraction of an hour.

Answer: $\frac{\quad}{\quad}$

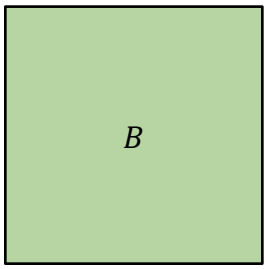
(ii) The distance of the climb was 4 km.
Work out Aileen's average **speed** for the climb, in km/hour.

Question 5 **(Suggested maximum time: 10 minutes)**

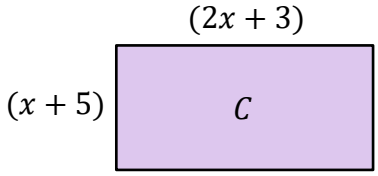
(a) Square A has sides of length of 5 cm.
Work out the **area** of square A, in cm^2.



(b) Square B has a perimeter of 64 cm.
Work out the **length of one side** of square B, in cm.



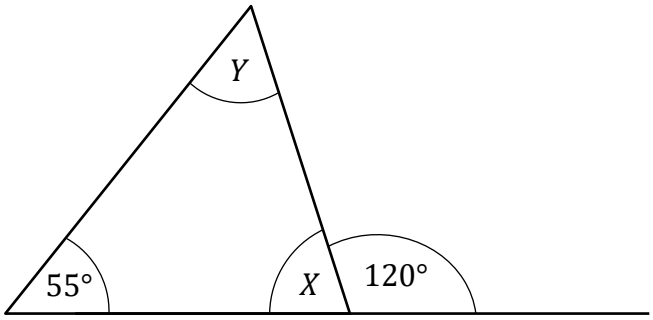
(c) Rectangle C has length $(2x + 3)$ and width $(x + 5)$.
Multiply out and simplify the following expression for the **area** of rectangle C.



Area $= (2x + 3)(x + 5)$

(d) A triangle is shown on the diagram below.
One of the sides has been extended.

The sizes of two of the angles are given.



(i) Two other angles are marked X and Y.
Find the size of the angle X and the size of the angle Y, without measuring.

$|\angle X| =$ ☐ $|\angle Y| =$ ☐

(ii) State whether the triangle in the diagram above is isosceles, scalene, or equilateral.
Give a reason for your answer.

Answer:	Isosceles	Scalene	Equilateral
(Tick (✓) **one** box only)	☐	☐	☐

Reason:

Question 6 **(Suggested maximum time: 10 minutes)**

Alex uses sticks to make a sequence of patterns.
The first three patterns in her sequence are shown below.

Pattern 1 **Pattern 2** **Pattern 3**

(a) Draw Pattern 4 in the sequence.

(b) Complete the table below to show the number of sticks in each of the first five patterns.
One is already done for you.

Pattern	1	2	3	4	5
Number of Sticks		5			

(c) Pattern 150 has 301 sticks.
How many sticks has Pattern 151?

(d) What kind of sequence is made by the number of sticks in each pattern?
Give a reason for your answer.

Answer:	linear	non-linear
(Tick (✓) **one** box only)	☐	☐

Reason:

(e) The number of sticks in Pattern n is:

$$2n + 1$$

(i) Use this to work out the number of sticks in Pattern 38 (when $n = 38$).

(ii) One of the patterns in the sequence, Pattern k, has exactly 27 sticks.
Find the value of k.

Question 7 **(Suggested maximum time: 10 minutes)**

(a) Passengers are waiting to board an aeroplane.
Each passenger has one bag and their bag is weighed.
The results are shown in the following frequency table.

Weight of bag (kg)	$7-8$	$8-9$	$9-10$	$10-11$	$11-12$	$12-13$
Number of passengers	20	47	61	30	12	10

[Note: $7-8$ means 7 kg or more, but less than 8 kg, and so on.]

(i) Work out the **total** number of passengers.

(ii) Passengers are charged an extra fee if their bag weighs more than $10{\cdot}5$ kg.
What is the **greatest** number of passengers who could have been charged the extra fee?

A family of 5 are travelling together.

(b) The weights of their 5 bags (in kg) are shown below.

9·9, 8·6, 7·2, 9·8, 9·0

(i) Work out the **mean** weight of the 5 bags, in kg.

(ii) Work out the **median** weight of the 5 bags, in kg.

(c) Each flight costs the same.
The total cost of the 5 flights is €756·40.
This includes a single fee of €21·40 for travel insurance.

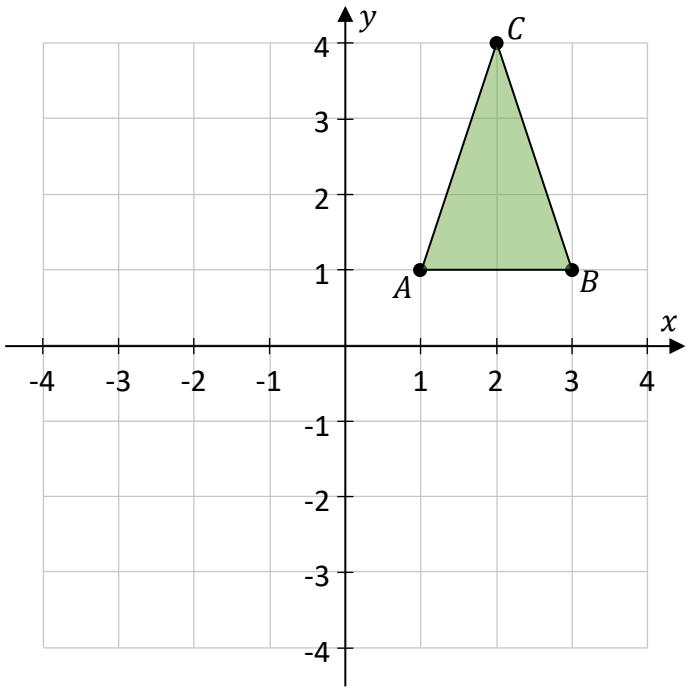
Work out the cost of **one** flight (excluding the travel insurance).

(d) The family change €400 into sterling. The exchange rate is €1 = £0·89 sterling.

Work out how much sterling they get.

Question 8 **(Suggested maximum time: 10 minutes)**

The triangle ABC is shown in the co-ordinate diagram below.



(a) Complete the table below to show the co-ordinates of the points A, B, and C.

Point	A	B	C
Co-ordinates	(1 , 1)	(,)	(,)

(b) How many **axes of symmetry** does the triangle ABC have?

Answer: (Tick (✓) **one** box only)

0	1	2	3
☐	☐	☐	☐

(c) On the diagram above, **draw** the image of ABC under **axial symmetry** in the x**-axis**.

(d) Work out the **area** of the triangle ABC.

(e) The slope of the line AC is 3.

Use this to find the equation of the line AC.
Give your answer in the form $y = mx + c$.

Question 9 **(Suggested maximum time: 5 minutes)**

Sarah has a gross income of €550 per week.

(a) Sarah pays income tax at 20%.
Work out Sarah's **gross tax** for one week.

(b) Sarah's weekly tax credit is €78.
Work out Sarah's **net tax** for one week.

(c) Work out Sarah's **net income** for one week.

Question 10 **(Suggested maximum time: 5 minutes)**

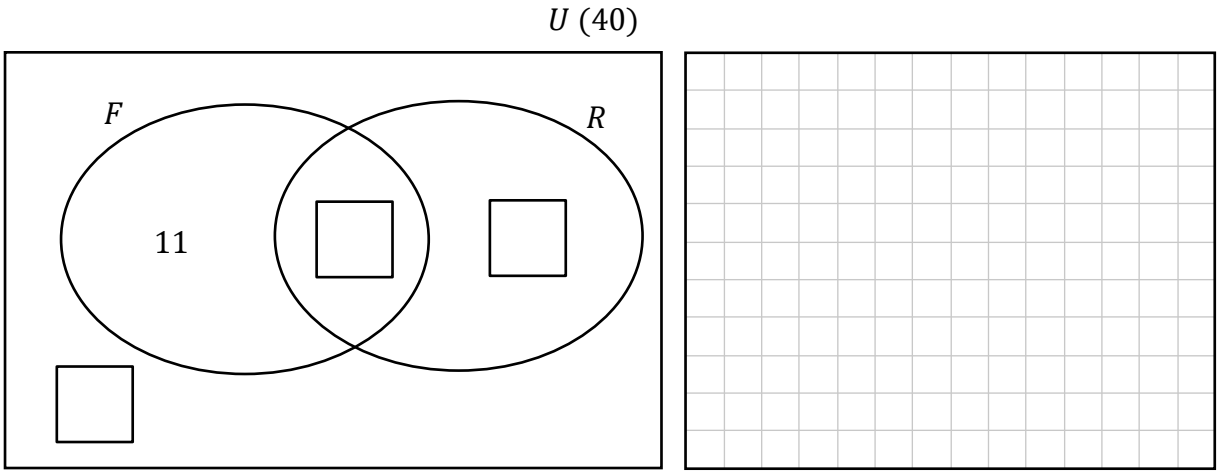
In a survey, 40 students were asked if they like playing football (F) or reading (R).

Of these:

5 said they like **both** playing football (F) **and** reading (R)

12 said they like reading (R)

(a) Use the information above to fill in the three missing values in the Venn diagram below.



(b) How many students like reading **only**?

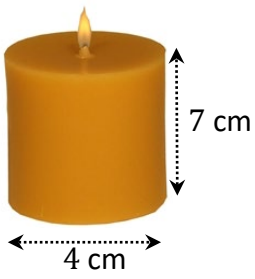
(c) **Explain** what the following statement means in the context of the survey:

$$\#(F \backslash R) = 11$$

(d) One student is picked at random from the 40 students who were surveyed.
What is the probability that this student does **not** like playing football **nor** reading?

Question 11 **(Suggested maximum time: 10 minutes)**

A candle is in the shape of a cylinder with a diameter of 4 cm and a height of 7 cm, as shown in the diagram on the right.



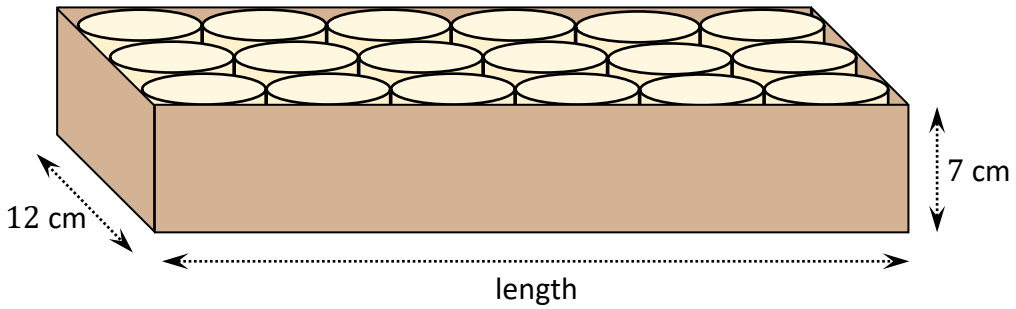
(a) **(i)** Write down the radius of the candle.

Radius $=$ ☐ cm

(ii) Work out the **volume** of one candle. Give your answer correct to the nearest cm^3.

$V = \pi \times r^2 \times h$

(b) 18 of these candles fit exactly into a rectangular box, as shown below.
The box has a width of 12 cm and a height of 7 cm.



(i) Write down the length of this **rectangular box**.

Length $=$ ☐ cm

(ii) Hence, work out the **volume** of this rectangular box.

Question 12 **(Suggested maximum time: 10 minutes)**

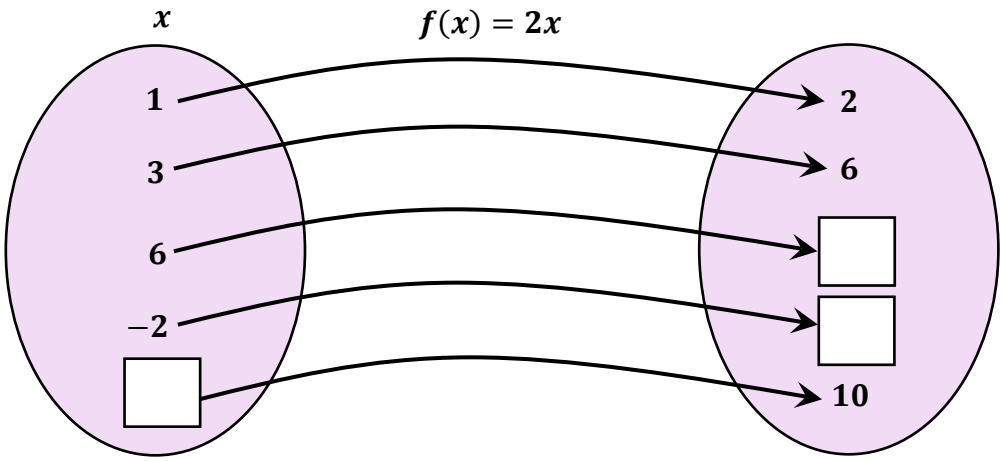
(a) Simplify:

$$6a + a - 3b + 2a + b$$

(b) Factorise the quadratic expression $x^2 - 7x + 12$.

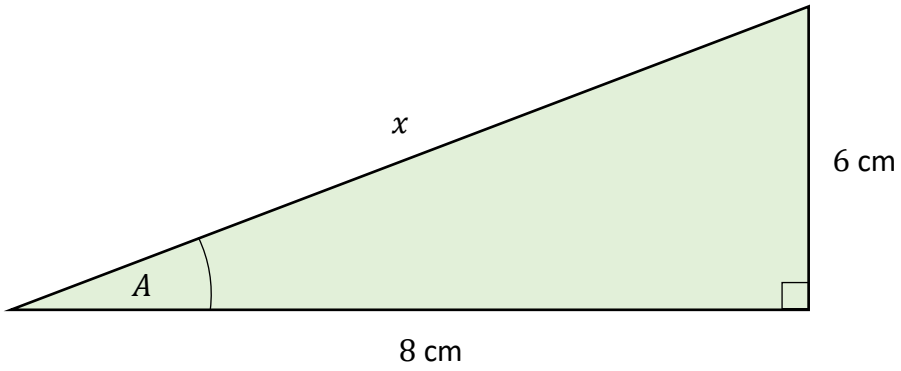
$$x^2 - 7x + 12 = (x - 3)(\quad)$$

(c) A mapping diagram of the function $f(x) = 2x$ is shown below.
Fill in the three missing entries into the diagram.



Question 13 **(Suggested maximum time: 5 minutes)**

A right-angled triangle is shown below.
One of the sides is marked x. One of the angles is marked A.



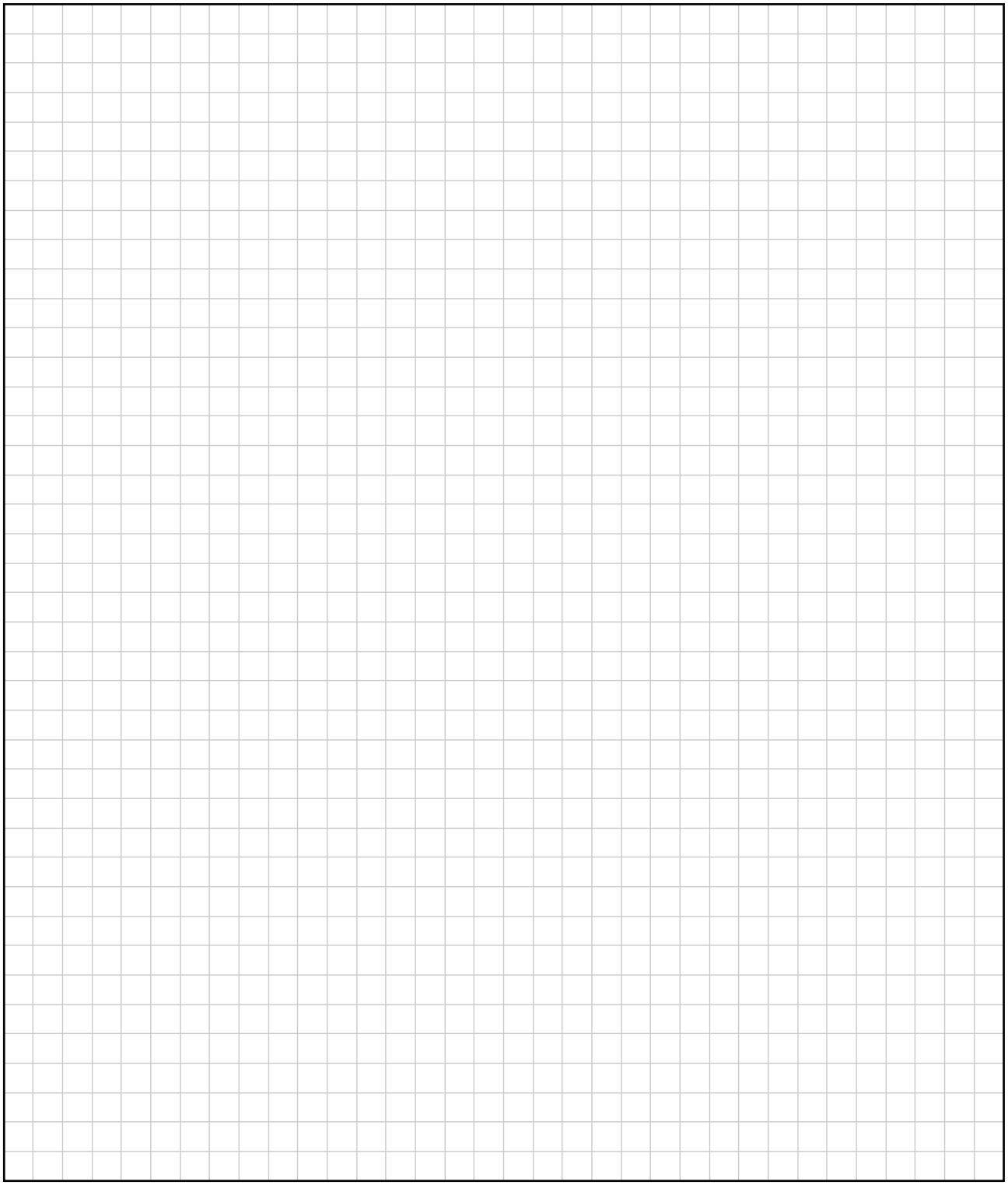
(a) Use the **Theorem of Pythagoras** to work out the length x, in cm.

(b) **(i)** Use the right-angled triangle in the diagram above to write the value of $\tan A$ as a fraction.

$$\tan A = \frac{\text{opposite}}{\text{adjacent}} = \frac{\square}{\square}$$

(ii) Hence, use your calculator to find the size of the angle A.
Give your answer correct to the nearest degree.

Page for extra work.
Label any extra work clearly with the question number and part.



Acknowledgements

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Mathematics

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