



Coimisiún na Scrúduithe Stáit  
State Examinations Commission

Junior Certificate Examination 2015

# Mathematics

Paper 2  
Ordinary Level

Monday 8 June – Morning 9:30 to 11:30

300 marks

Examination number
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Centre Stamp
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Running total	
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For examiner			
Question	Mark	Question	Mark
1		11	
2		12	
3			
4			
5			
6			
7			
8			
9			
10		Total	

Grade
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## **Instructions**

There are 12 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 answers in the spaces provided in this booklet. You may lose marks if you do not do so. There is space for extra work at the back of the booklet. You may also ask the superintendent for more paper. 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.

**You will lose marks if all necessary work is not clearly shown.**

**You may lose marks if the appropriate units of measurement are not included, where relevant.**

**You may lose marks if your answers are not given in simplest form, where relevant.**

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

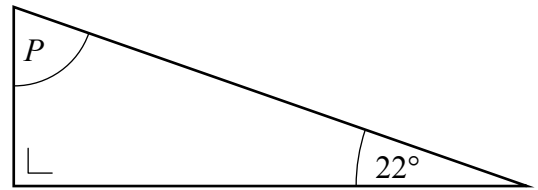
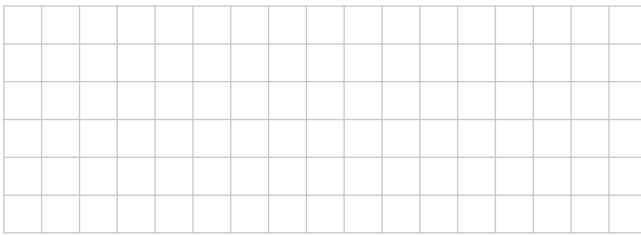




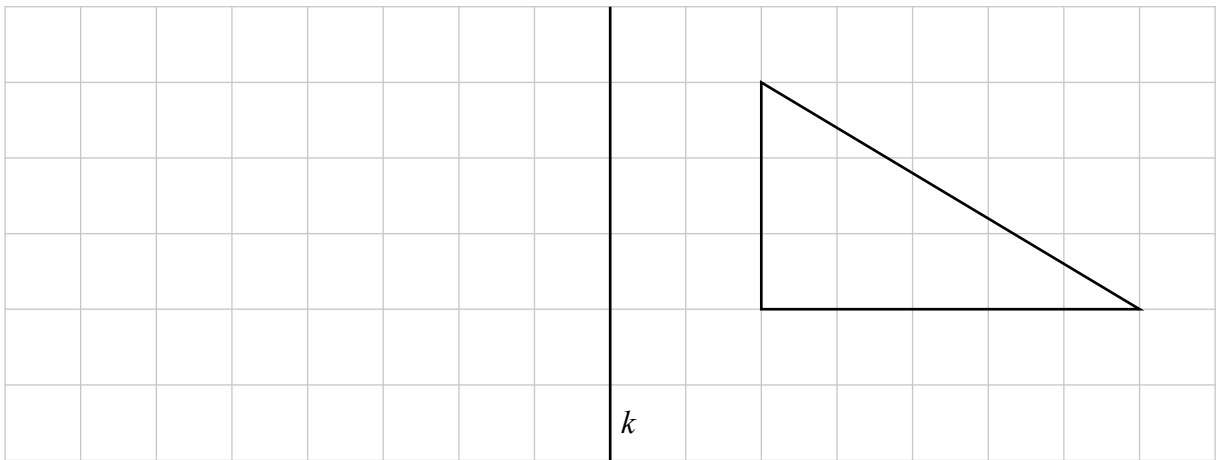
**Question 3**

(Suggested maximum time: 10 minutes)

- (a) Calculate the size of the angle marked  $P$  in the right-angled triangle below.

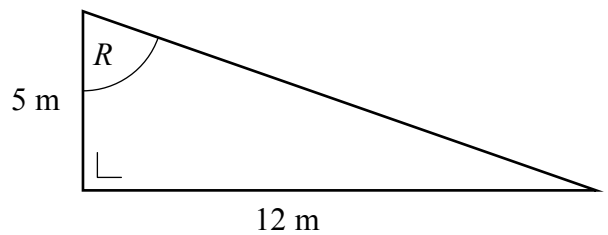


- (b) Draw the image of the triangle below under **axial symmetry** in the line  $k$ .

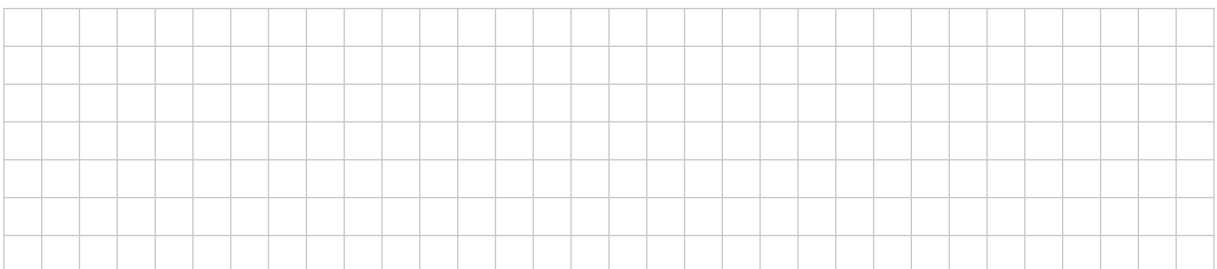


- (c) (i) Write down the length of the side **opposite** the angle  $R$  in the triangle shown.

Opposite =  m



- (ii) Use the Theorem of **Pythagoras** to find the length of the **hypotenuse** of this triangle.



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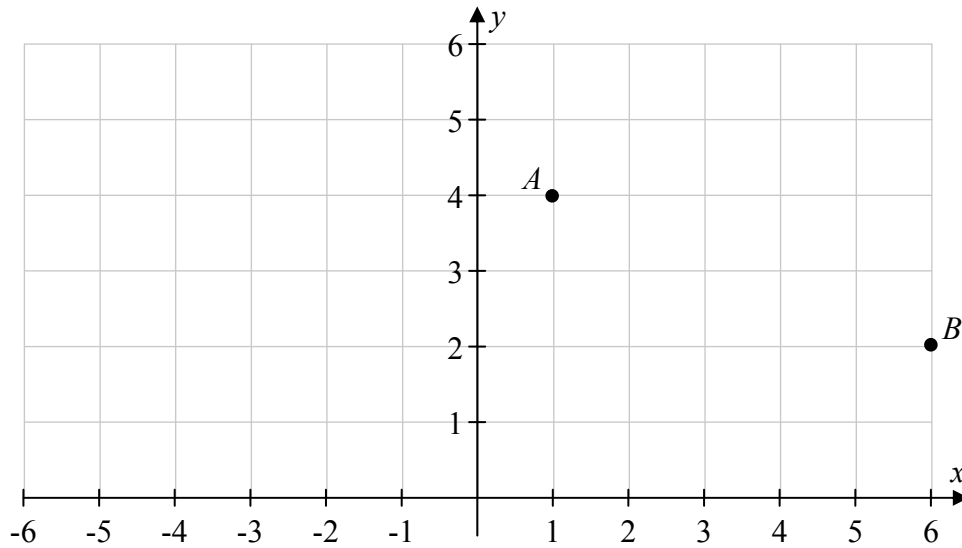




**Question 6**

(Suggested maximum time: 10 minutes)

The points  $A$  and  $B$  are shown on the co-ordinate grid below.



(a) Write down the co-ordinates of the point  $A$ .

$A = \boxed{\quad (\quad, \quad) \quad}$

$B$  is the point  $(6, 2)$ .

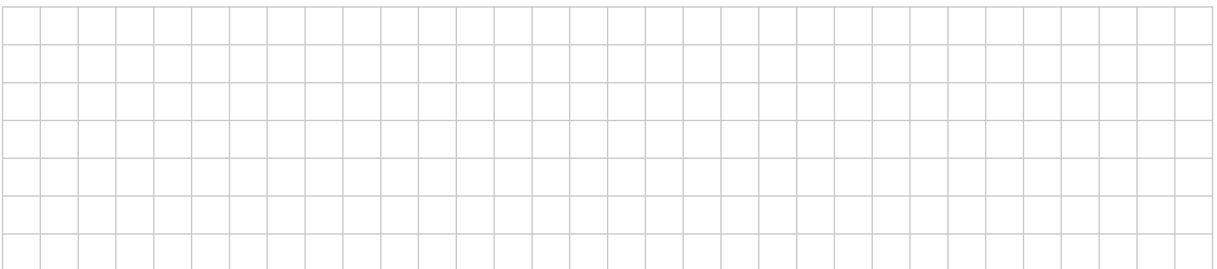
(b) Find the **length** of  $[AB]$ . Give your answer in the form  $\sqrt{x}$ , where  $x \in \mathbb{N}$ .



$C$  is the point  $(-4, 1)$ .

(c) **Plot** the point  $C$  on the co-ordinate grid above.  
**Label** the point  $C$  clearly.

(d) Find the **slope** of the line  $CA$ .

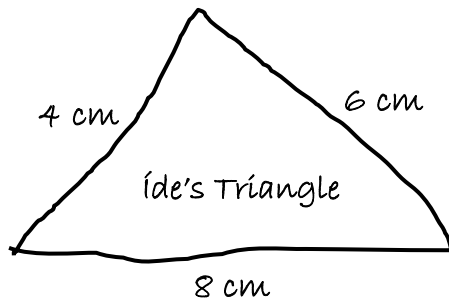




**Question 7**

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

Íde draws the sketch of the triangle shown. The lengths of the sides are 4 cm, 6 cm, and 8 cm.



(a) What type of triangle has Íde sketched? Put a tick (✓) in the correct box.

Type of Triangle	Put a tick (✓) in <b>one</b> box
Isosceles	
Scalene	
Equilateral	

(b) **Construct** Íde's triangle in the box below. Show your construction lines clearly.

(c) Measure the biggest angle in your triangle from part (b). Write the size of this angle into the box below, correct to the nearest degree.

Size of biggest angle =  °

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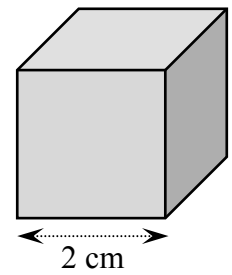
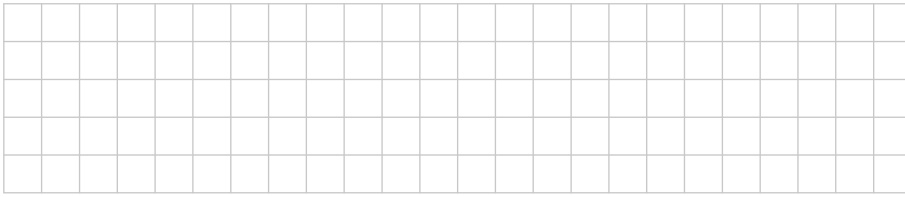


**Question 9**

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

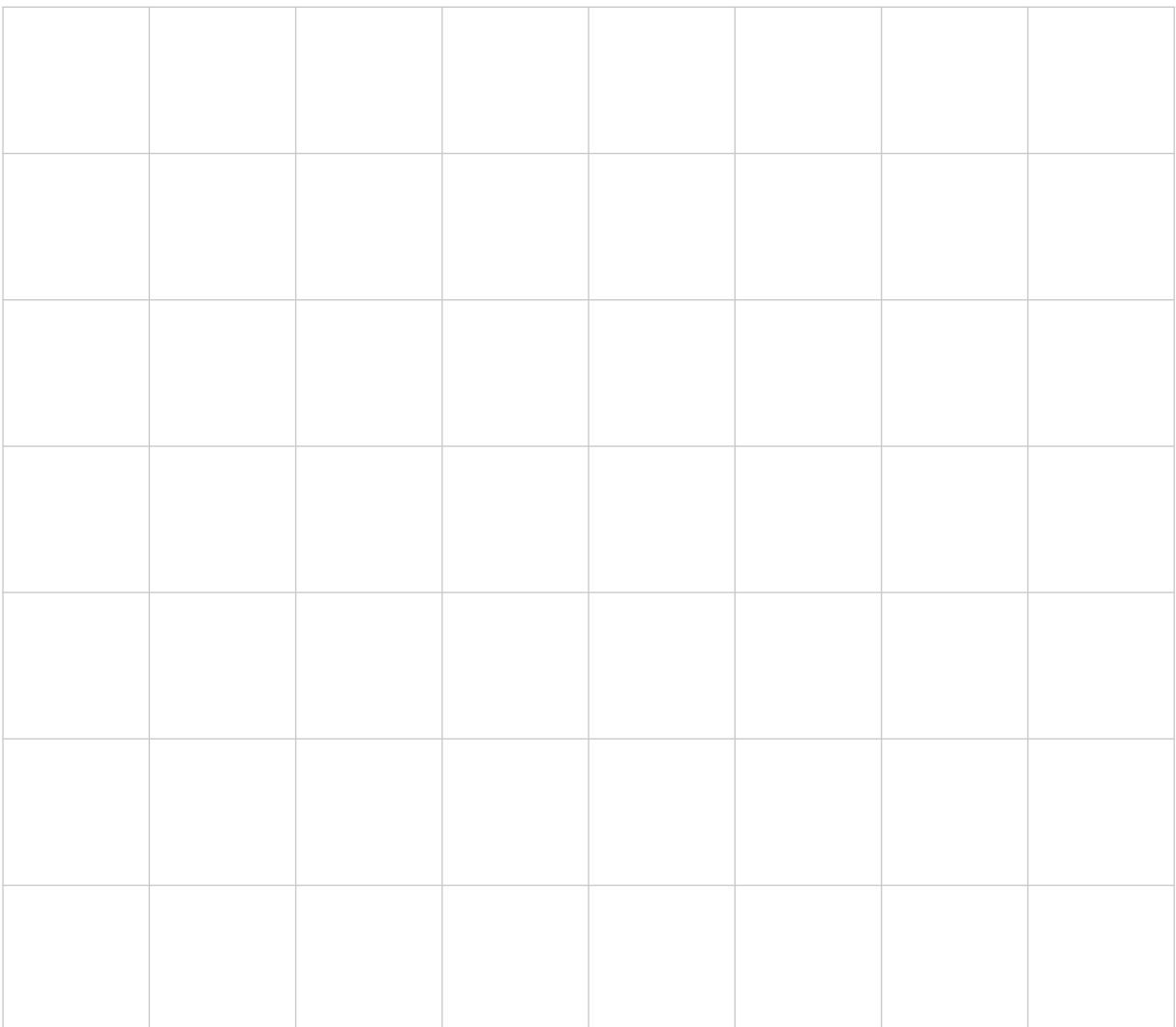
A cube has sides of length 2 cm.

**(a)** Find the **volume** of the cube.



**(b)** How many **faces** does a cube have?

**(c)** Draw a **net** of the cube, as accurately as you can.



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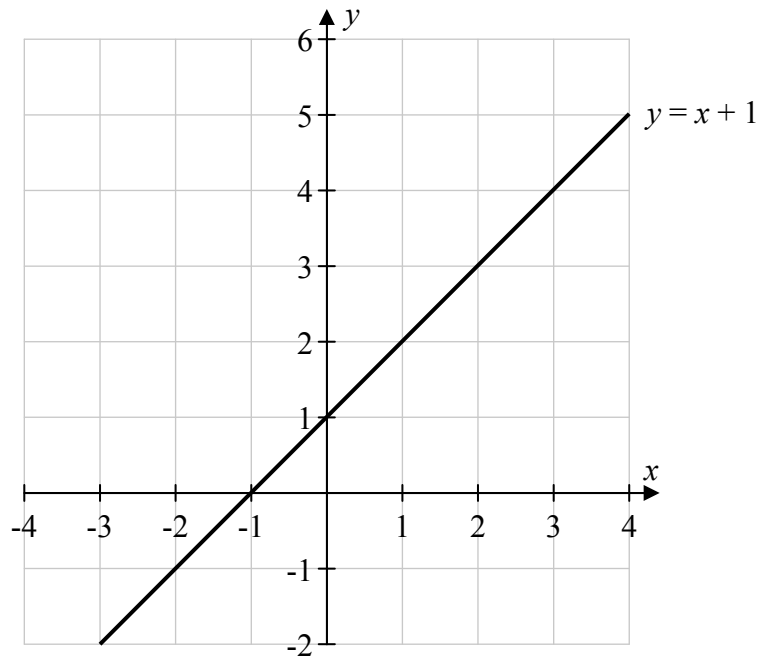




**Question 12**

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

The graph of the line  $y = x + 1$  is shown on the co-ordinate grid below.



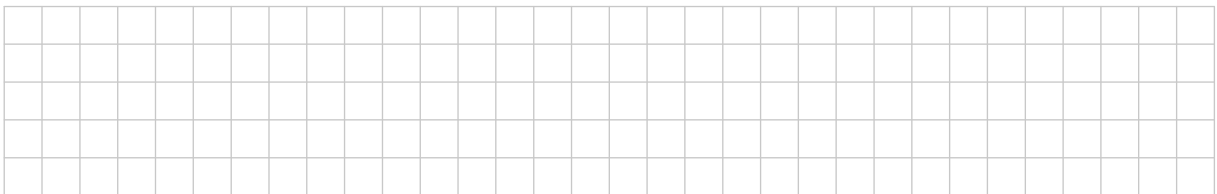
- (a) Write down the co-ordinates of the point where this line crosses the **y-axis**.

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- (b) Write down the co-ordinates of the point where the line  $y = x + 4$  crosses the **y-axis**.

Answer: 

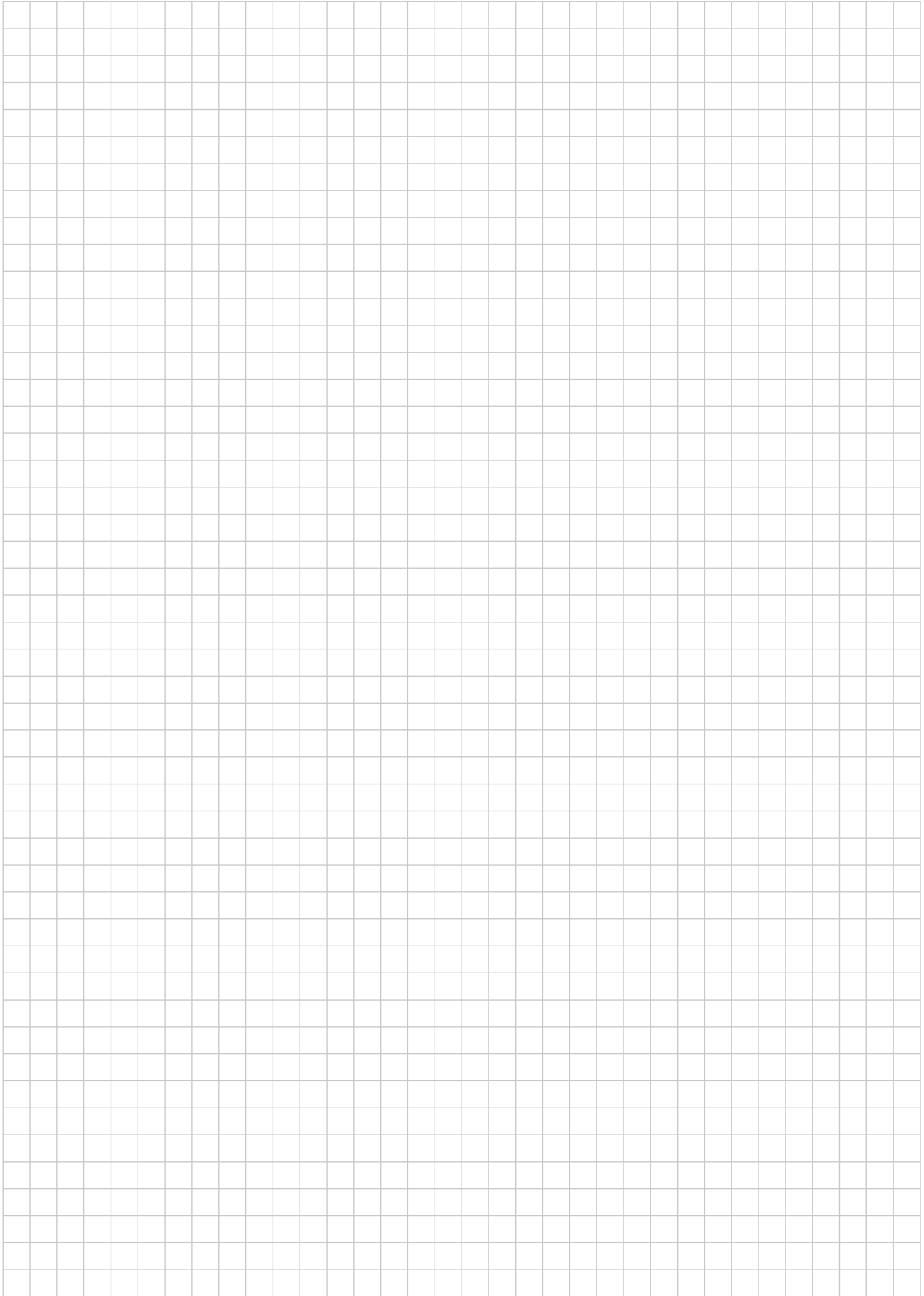
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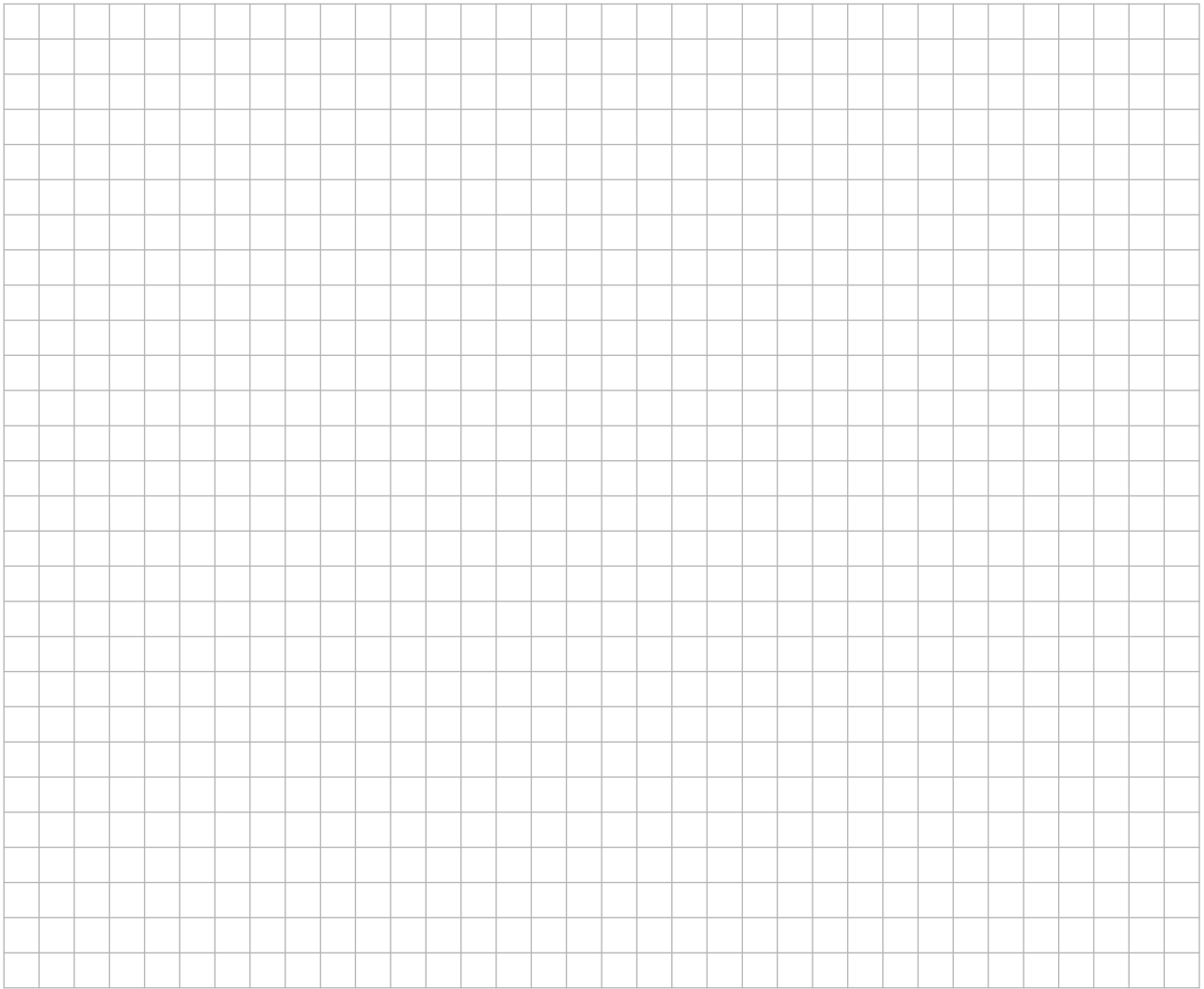
- (c) Hence, or otherwise, **draw** the graph of the line  $y = x + 4$  on the co-ordinate grid above.



You may use this page for extra work.



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