



Coimisiún na Scrúduithe Stáit  
State Examinations Commission

Junior Certificate Examination 2016

# Mathematics

Foundation Level

Friday 10 June – Afternoon 2:00 to 4:00

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		13	
4		14	
5		15	
6			
7			
8			
9			
10		Total	

Grade
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## Instructions

There are 15 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. You may 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 you do not show all necessary 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**

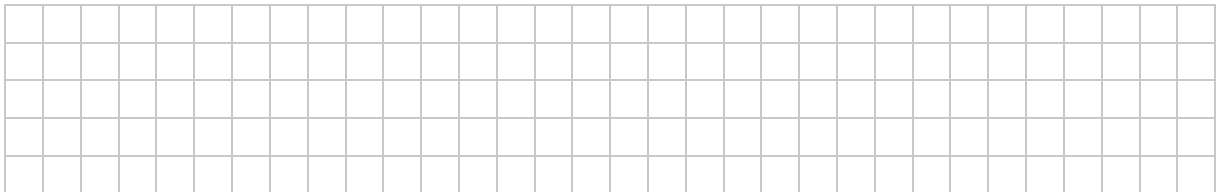
**(Suggested maximum time: 5 minutes)**

(a) Write down the value of each of the following.

(i)  $7 + 11 =$

(ii)  $85 - 61 =$

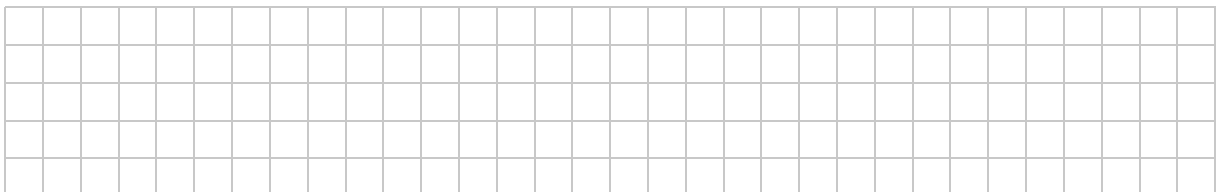
(iii)  $6 \cdot 4 \times 5 =$



(b) (i) Write down the nearest **whole number** to  $6 \cdot 1$ .      Answer =

(ii) Round each number to the nearest **whole number** to estimate the value of  $3 \cdot 8 \times 8 \cdot 2$ .

$3 \cdot 8 \times 8 \cdot 2 =$    $\times$    $=$



(c) Write down the **reciprocal** of 20.      Answer =

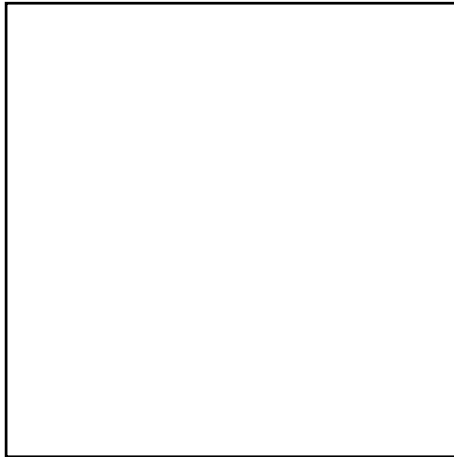






**Question 5****(Suggested maximum time: 15 minutes)**

- (a) The square shown below has a number of axes of symmetry.
- (i) Draw **one** axis of symmetry of the square.



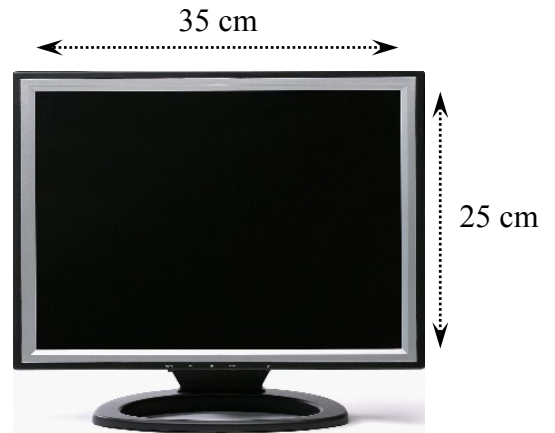
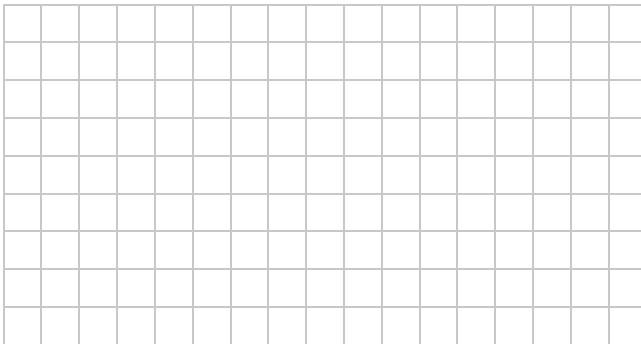
- (ii) Put a tick (✓) in the correct box in the table below to show how many axes of symmetry a square has.

Number of axes of symmetry of a square	Tick <b>one</b> box
2	<input type="checkbox"/>
4	<input type="checkbox"/>
8	<input type="checkbox"/>
12	<input type="checkbox"/>

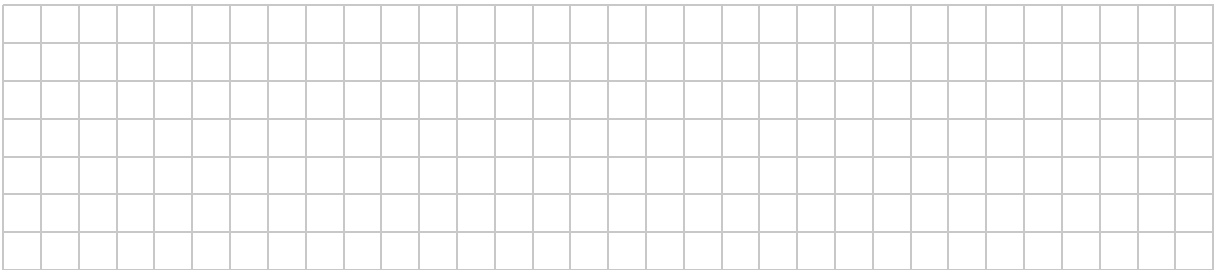
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(b) A rectangular computer screen has sides of length 35 cm and 25 cm.

(i) Work out the **area** of the computer screen, in  $\text{cm}^2$ .

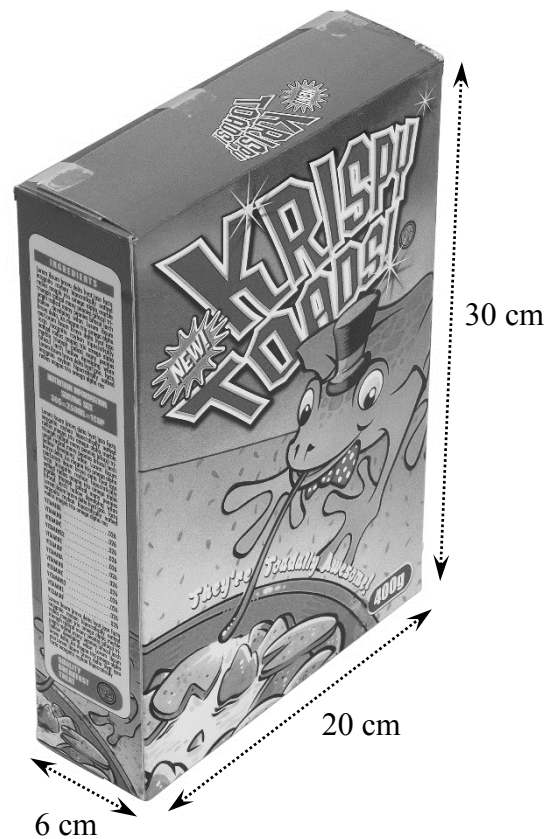


(ii) Work out the length of the **perimeter** of the computer screen, in cm.



(c) A rectangular box is 20 cm long, 6 cm wide, and 30 cm high.

Work out the **volume** of this box, in  $\text{cm}^3$ .







**Question 7****(Suggested maximum time: 15 minutes)**

Shauna and Eoin are carrying out surveys on the students in First Class in their school.

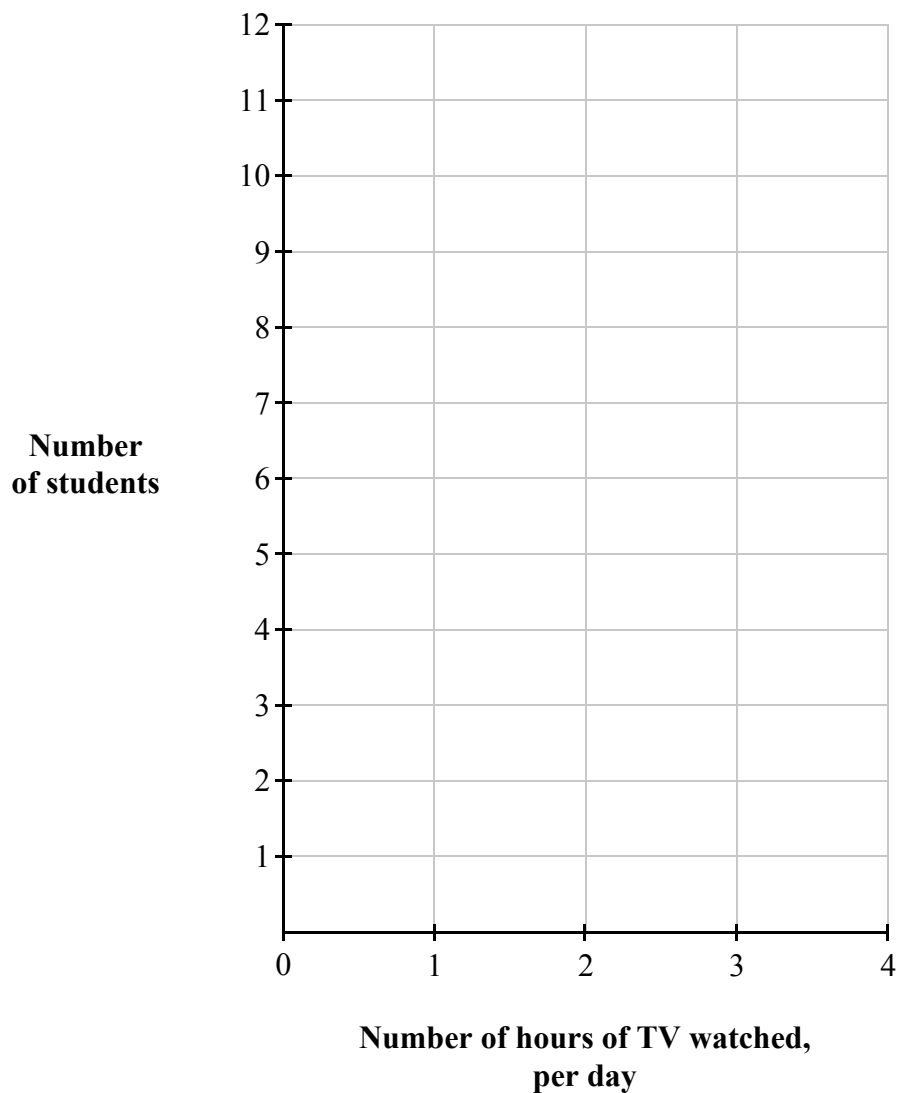
Shauna asks all the students how many hours of TV they watch, per day.

Her results are shown in the table below.

<b>Number of hours of TV watched, per day</b>	0 – 1 hours	1 – 2 hours	2 – 3 hours	3 – 4 hours
<b>Number of students</b>	7	3	10	5

Note: “1 – 2” means at least 1 but less than 2, etc.

(a) Draw a **histogram** to show these results.









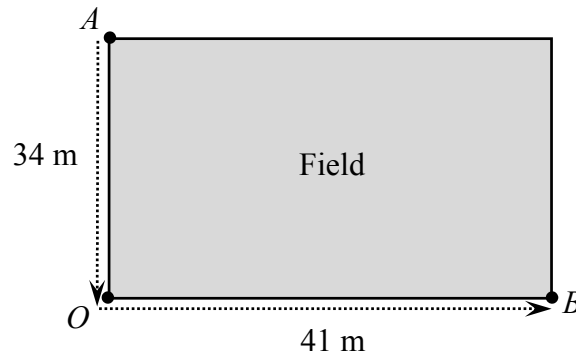




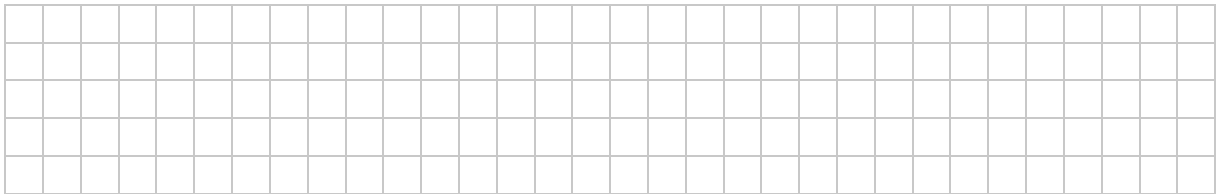
**Question 13**

(Suggested maximum time: 10 minutes)

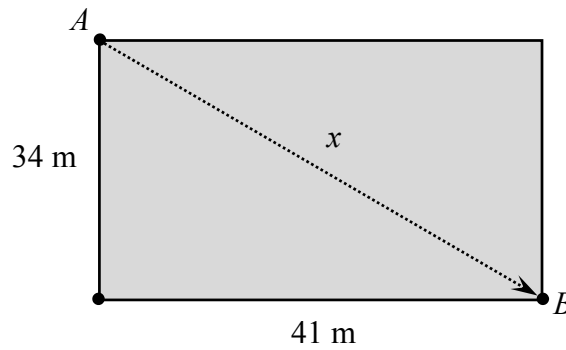
The diagram shows a rectangular field near Aisling's school.  
When it is wet, she walks from  $A$  to  $O$  to  $B$  **around** the field, as shown below.



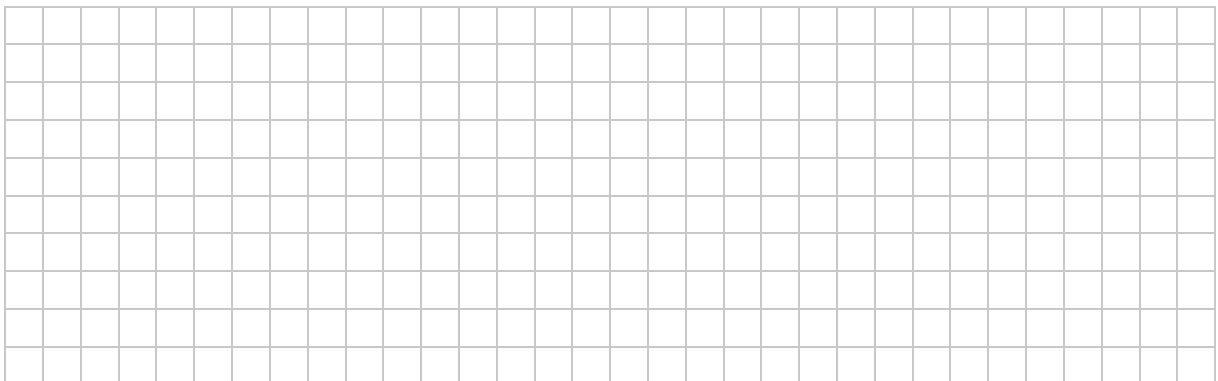
- (a) Find the distance that Aisling walks, going from  $A$  to  $O$  to  $B$  **around** the field.



When it is dry, Aisling walks from  $A$  to  $B$  straight **through** the field, as shown below.  
This distance is  $x$ .

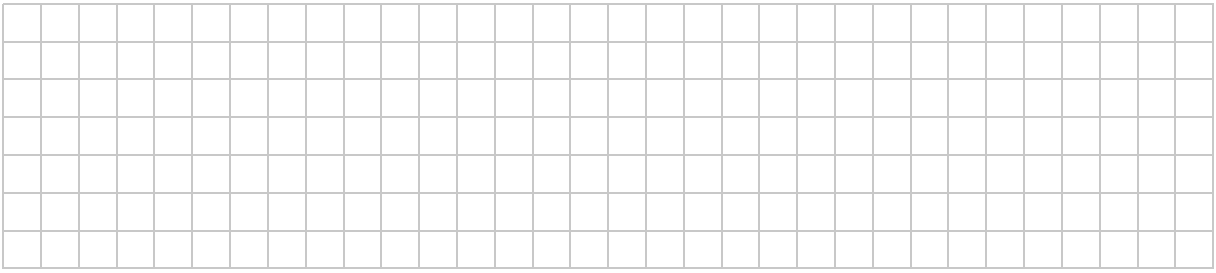


- (b) Use the **Theorem of Pythagoras** to find the value of  $x$ .  
Give your answer in metres, correct to one decimal place.





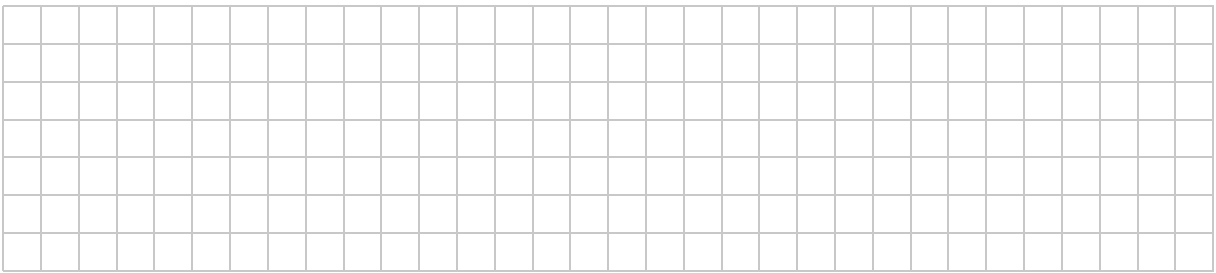
- (c) Find how much **shorter** it is for Aisling to walk straight through the field instead of around it. Give your answer correct to the nearest metre.



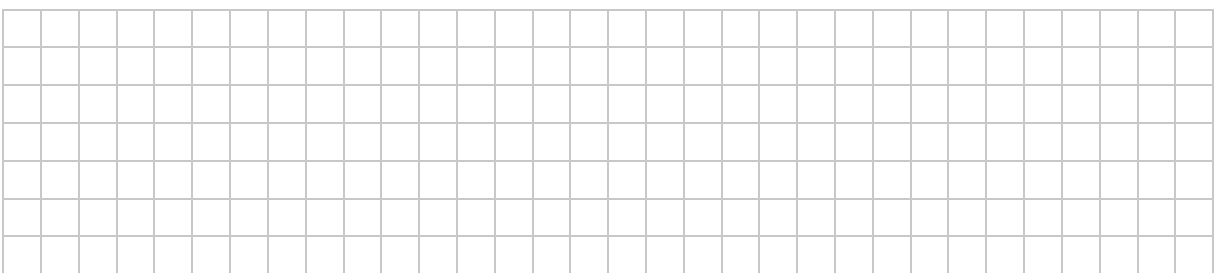
**Question 14**

(Suggested maximum time: 5 minutes)

- (a) Multiply out  $4(6x + 2y + 3)$ .



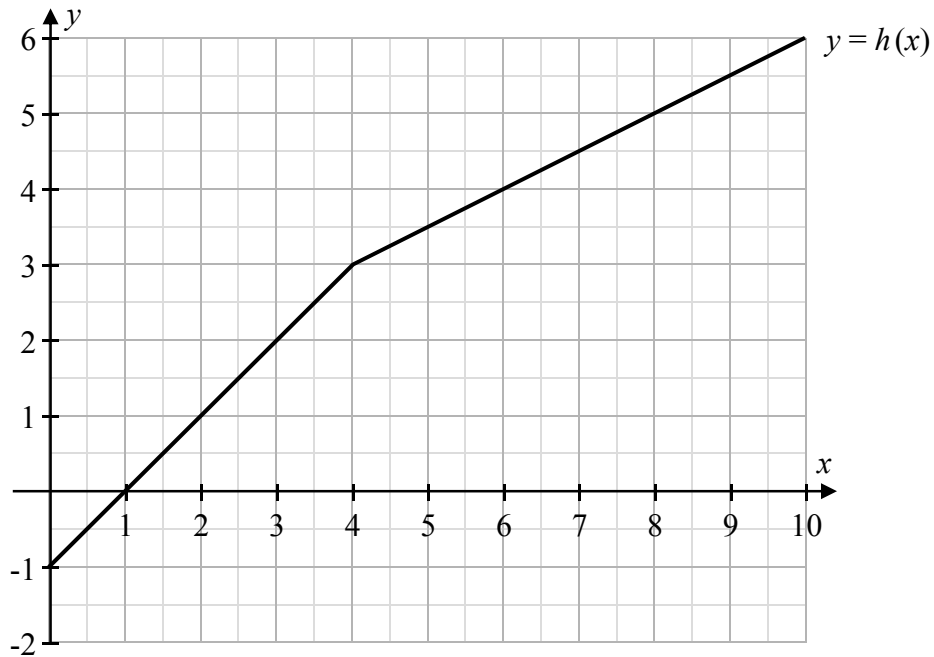
- (b) Factorise  $3x - 12$ .



**Question 15**

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

The graph of the function  $y = h(x)$  is shown on the co-ordinate grid below.  
The graph is made up of two line segments.



(a) Use the **graph above** to answer the following questions.

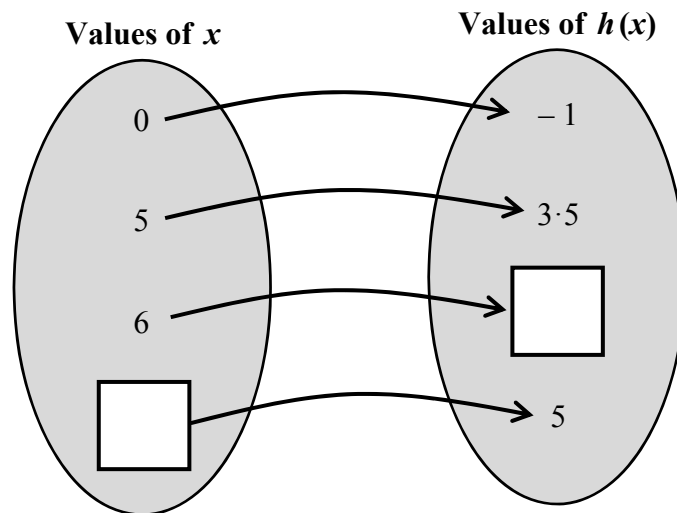
(i) Find the value of  $h(4)$ .

$h(4) =$

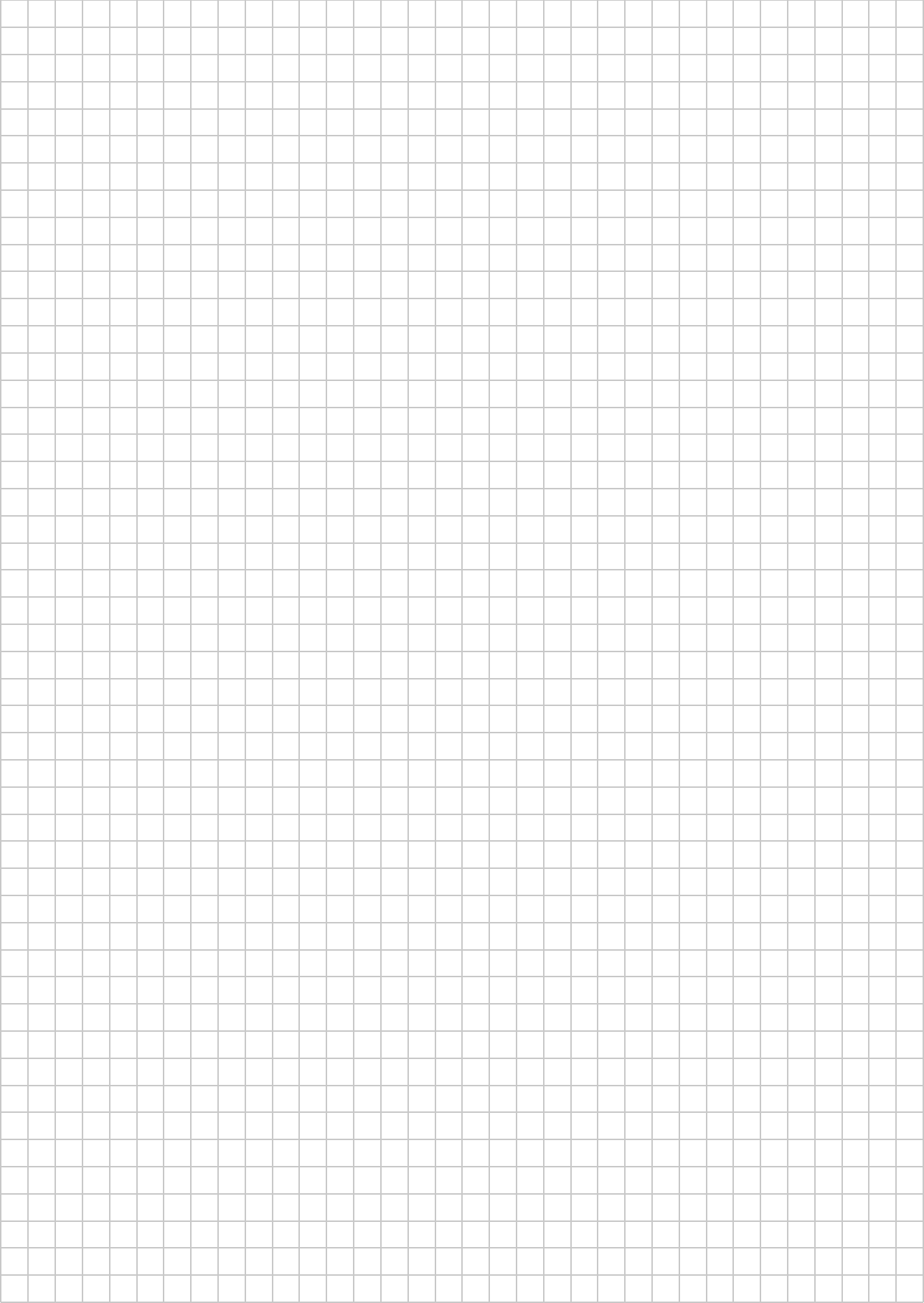
(ii) What number must  $\odot$  represent, if  $h(\odot) = 1$ ?

$\odot =$

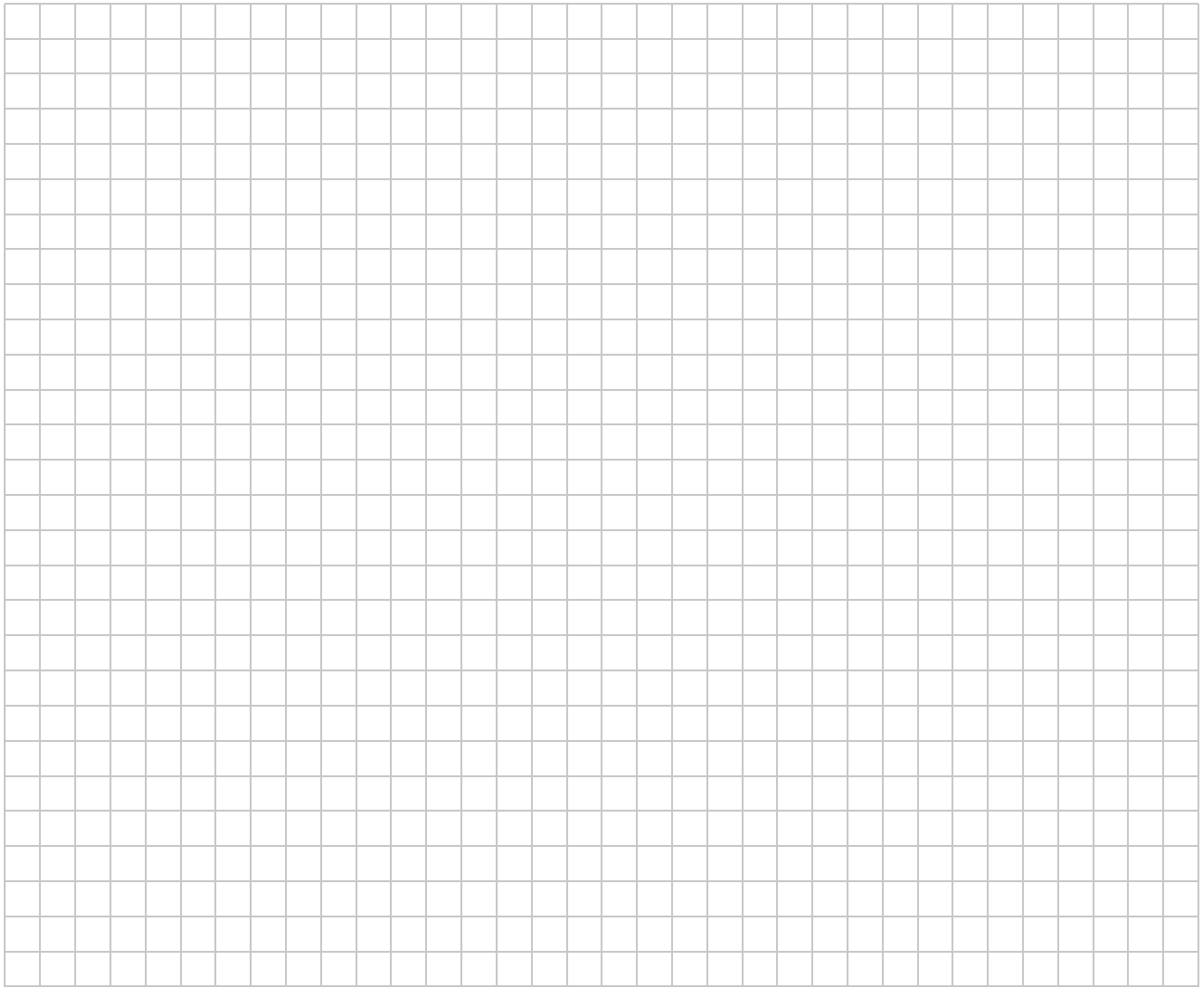
(b) Use the **graph above** to fill in the two missing values in the arrow diagram below, which shows the values of  $h(x)$  for the given values of  $x$ .



You may use this page for extra work.



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Junior Certificate 2016 – Foundation Level

**Mathematics**

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