



Coimisiún na Scrúduithe Stáit  
State Examinations Commission

Junior Certificate Examination 2012  
Sample Paper

Mathematics  
(Project Maths – Phase 2)

Foundation Level

Time: 2 hours

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		16	
7		17	
8		18	
9		19	
10		Total	

Grade
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## Instructions

There are 19 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.

Question 19 carries a total of 50 marks.

Write your answers in the spaces provided in this booklet. 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 booklet of *Formulae and Tables*. You must return it at the end of the examination. You are not allowed to bring your own copy into the examination.

Marks will be lost if all necessary work is not clearly shown.

Answers should include the appropriate units of measurement, where relevant.

Answers should be given in simplest form, where relevant.

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

**Question 1**

(suggested maximum time: 2 minutes)

Find the value of:

(a)  $293 + 78 =$  \_\_\_\_\_

(b)  $38 \times 7 =$  \_\_\_\_\_

(c) In a word game points are scored by forming words from individual lettered tiles and placing them on a board. The points for each letter are written on the tile. In a game, Maura selects these seven tiles.

Seven individual lettered tiles are shown, each in a square box with the letter and its point value written on it. The tiles are:  $K_5$ ,  $X_8$ ,  $U_1$ ,  $O_1$ ,  $B_3$ ,  $E_1$ , and  $J_8$ .

She then arranges them to form the word below.

A horizontal row of seven lettered tiles arranged to form the word "JUBOX". The tiles from left to right are:  $J_8$ ,  $U_1$ ,  $K_5$ ,  $E_1$ ,  $B_3$ ,  $O_1$ , and  $X_8$ .

Find the total number of points that Maura would score for the above word.


(d) Liam looks at the same letters but can only form a three-letter word worth 12 points. Write down a three-letter word that Liam might have chosen.

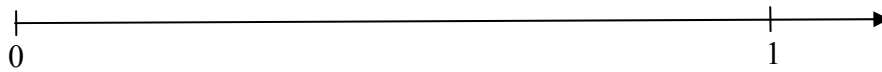
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**Question 2**

**(suggested maximum time: 2 minutes)**

- (a) Represent the numbers 0.6 and 0.4 on the number line below.



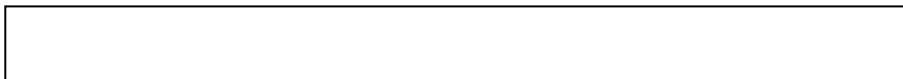
- (b) Which is the bigger of the two numbers? \_\_\_\_\_

- (c) Estimate what fraction of the strip below is shaded.

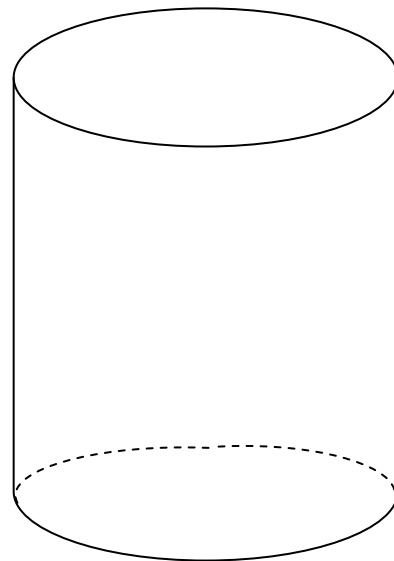


**Answer:**


- (d) Shade in  $\frac{3}{4}$  of the strip below .



- (e) Show the approximate height of water in the cylinder if the cylinder is  $\frac{4}{5}$  full.





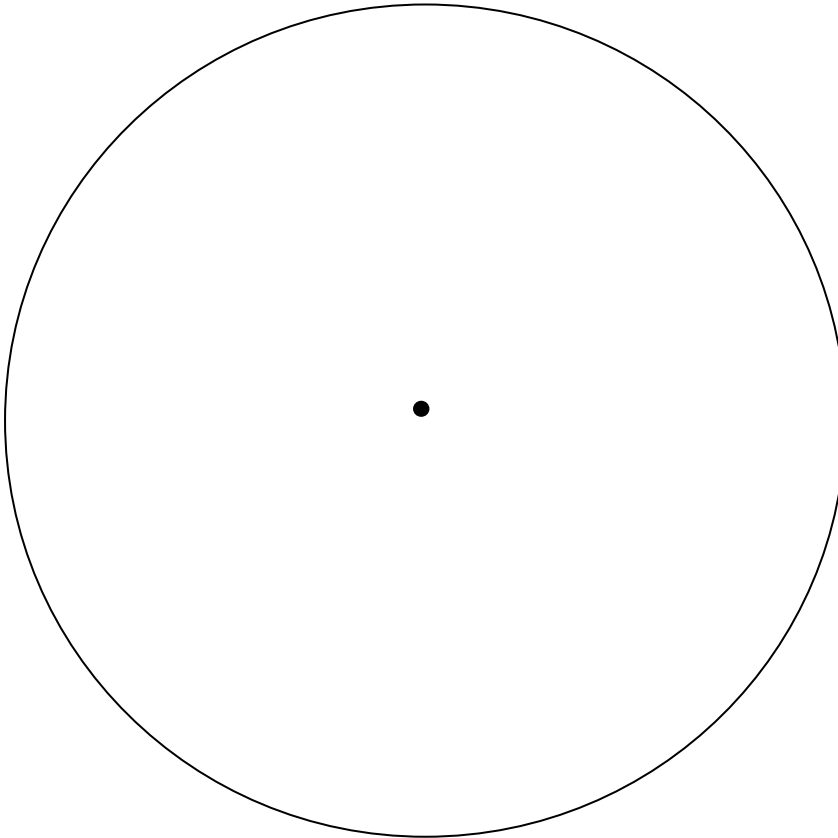
- (d) Mary travels to the airport on a motorway at a steady speed of 120 km/h. How long does it take her to travel 50 km at this speed?

Time = \_\_\_\_\_


**Question 4**

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

- (a) Measure and write down the diameter of the circle below. Give your answer correct to the nearest cm.



Diameter = \_\_\_\_\_ cm

- (b) Find the radius of the circle.

Radius = \_\_\_\_\_ cm

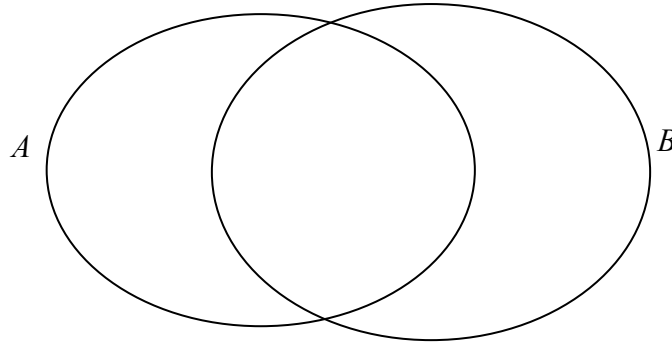
- (c) Calculate the area of the circle.


**Question 5**

(suggested maximum time: 5 minutes)

$A = \{ c, e, l, w \}$  and  $B = \{ m, e \}$

(a) Show the elements of the sets  $A$  and  $B$  on the Venn diagram below.



(b) List the elements of  $A \cup B$ .  $A \cup B = \{ \quad, \quad, \quad, \quad, \quad \}$

**Question 6**

(suggested maximum time: 5 minutes)

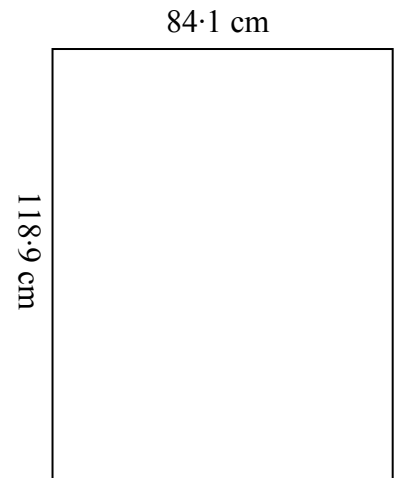
(a) The diagram shows an A0 –sized sheet of paper which measures 84.1 cm by 118.9 cm. In order to estimate the area of an A0 sheet:

Write down the nearest whole number to 84.1 \_\_\_\_\_

Write down the nearest whole number to 118.9 \_\_\_\_\_

Multiply **your** two answers to estimate the area.

\_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_



(b) Find the exact area of the sheet using the original measurements.

$84.1 \text{ cm} \times 118.9 \text{ cm} = \underline{\hspace{2cm}}$

(c) Find the difference between the exact area from (b) and your estimate of the area from (a).

Actual area	–	Estimated Area	=	Difference
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**Question 9**

(suggested maximum time: 5 minutes)

For each of the events A, B, C, D and E below, estimate its probability and place the letter in the most appropriate position on the probability scale below.

A name is picked at random from a list of 50 girls and 50 boys.

**A** = A girl's name is picked.

One card is drawn at random from a pack of playing cards.

**B** = The card is a diamond.

A day is chosen at random from a list of the days of the week.

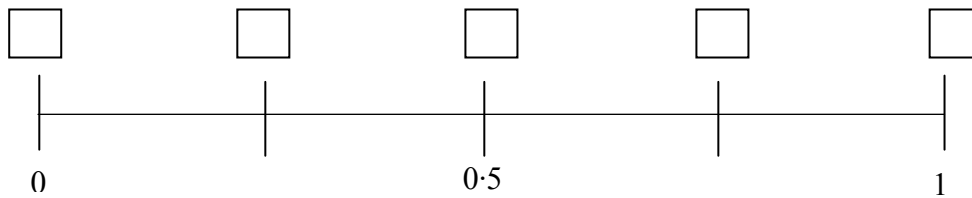
**C** = The name of the day contains the letter a.

One number is picked at random from the set {1, 2, 3, 4, 5, 7, 11, 13}.

**D** = The number chosen is a prime number.

The three angles of a particular triangle are measured and added together.

**E** = The answer is 100°.



**Question 10**

(suggested maximum time: 5 minutes)

Sophie has a box of buttons.

Contents
3 yellow buttons
5 green buttons
7 red buttons
4 purple buttons
1 black button

(a) How many buttons are in the box? \_\_\_\_\_

She takes a button from the box at random.

(b) What is the probability that Sophie will get a black button?


(c) Write the missing colour in the sentence below.

The probability that Sophie will get a .....button is  $\frac{1}{4}$ .











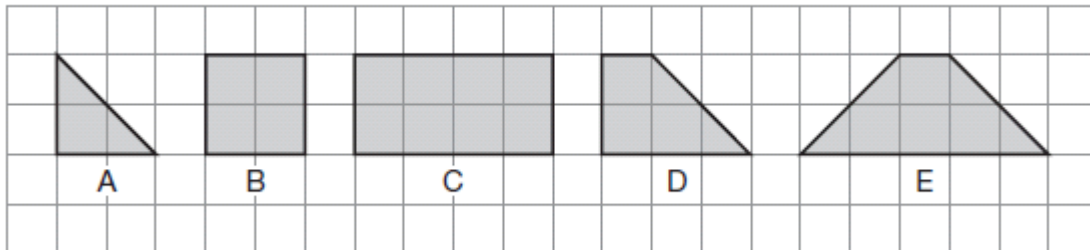




**Question 18**

(suggested maximum time: 5 minutes)

Look at these five shapes and complete the sentences below.



- (a) Shape \_\_\_\_\_ is the only shape with three sides.
- (b) Shape \_\_\_\_\_ is the only one with no right angles.
- (c) Shape \_\_\_\_\_ is the only one with no lines of symmetry.
- (d) Shape B is the only shape with four \_\_\_\_\_.
- (e) Shape \_\_\_\_\_ could be formed by joining together two copies of shape \_\_\_\_\_.

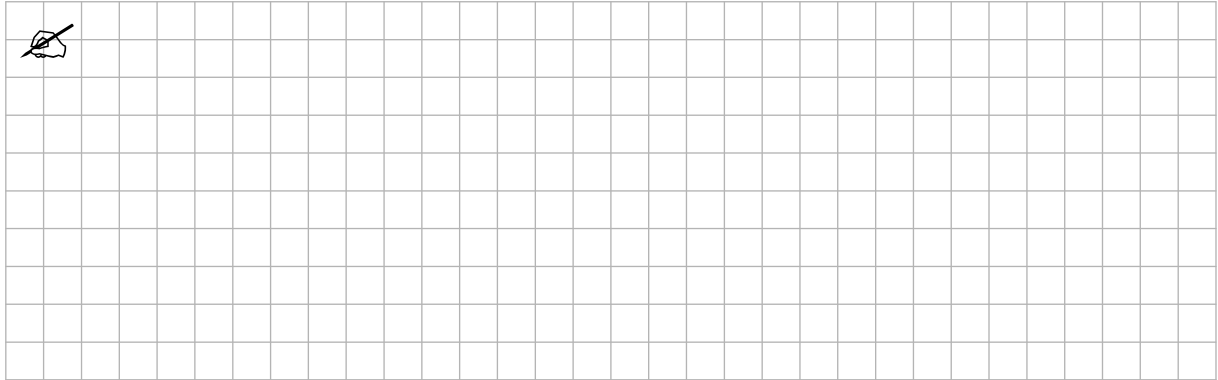
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**Question 19**

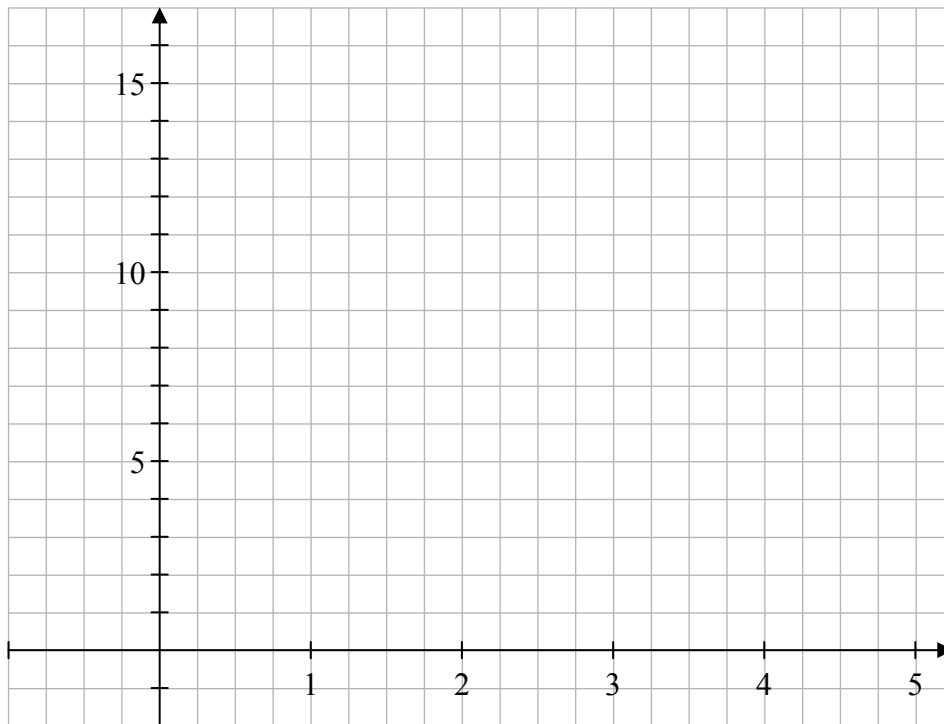
(suggested maximum time: 10 minutes)

- (a) Given that  $y = 2x + 5$ , complete the table below.  
Show all your work.


$x$	1	2	3	4	5
$y$			11		



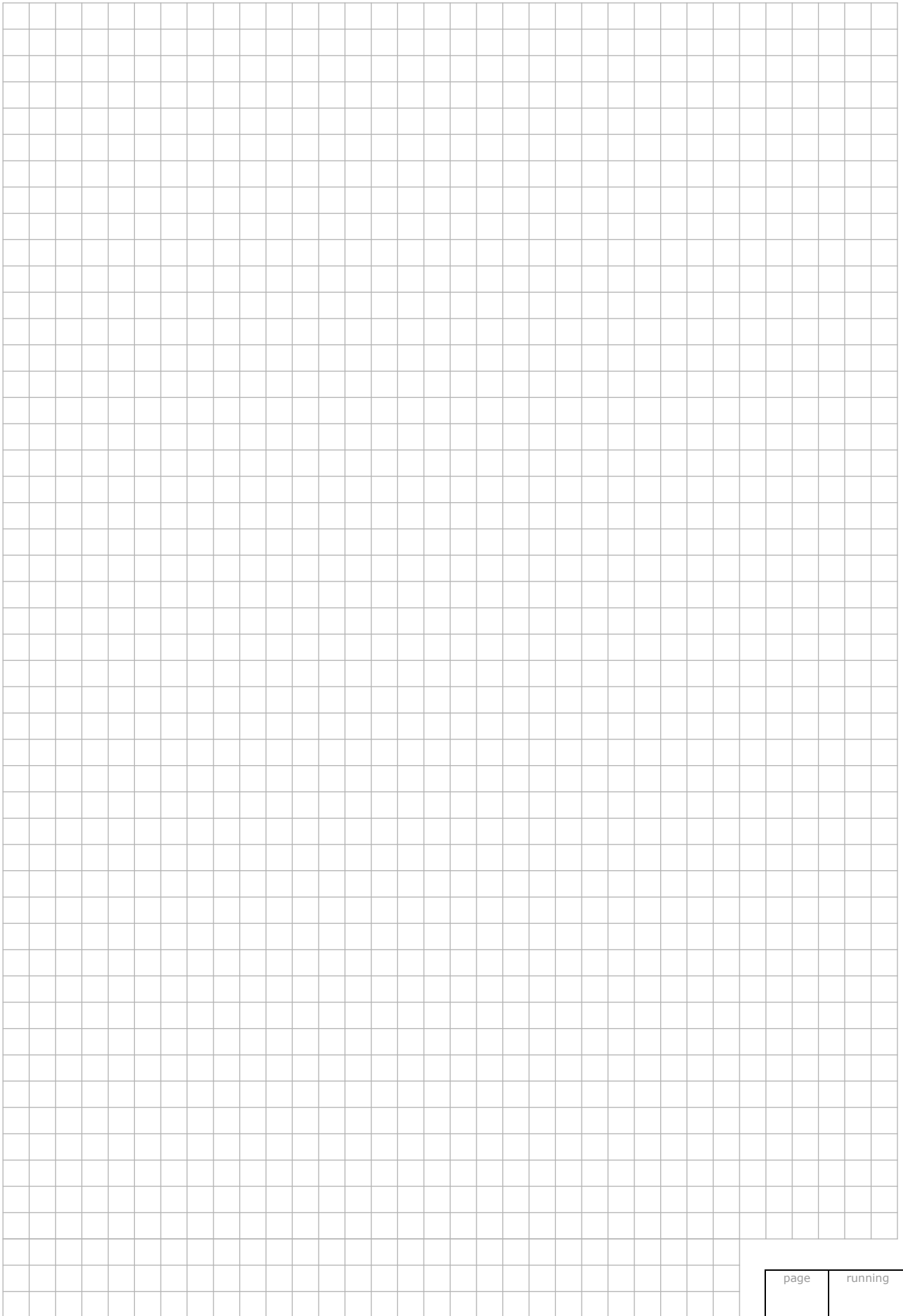
- (b) Using your answers from (a), draw the graph of  $y = 2x + 5$  from  $x = 1$  to  $x = 5$ .



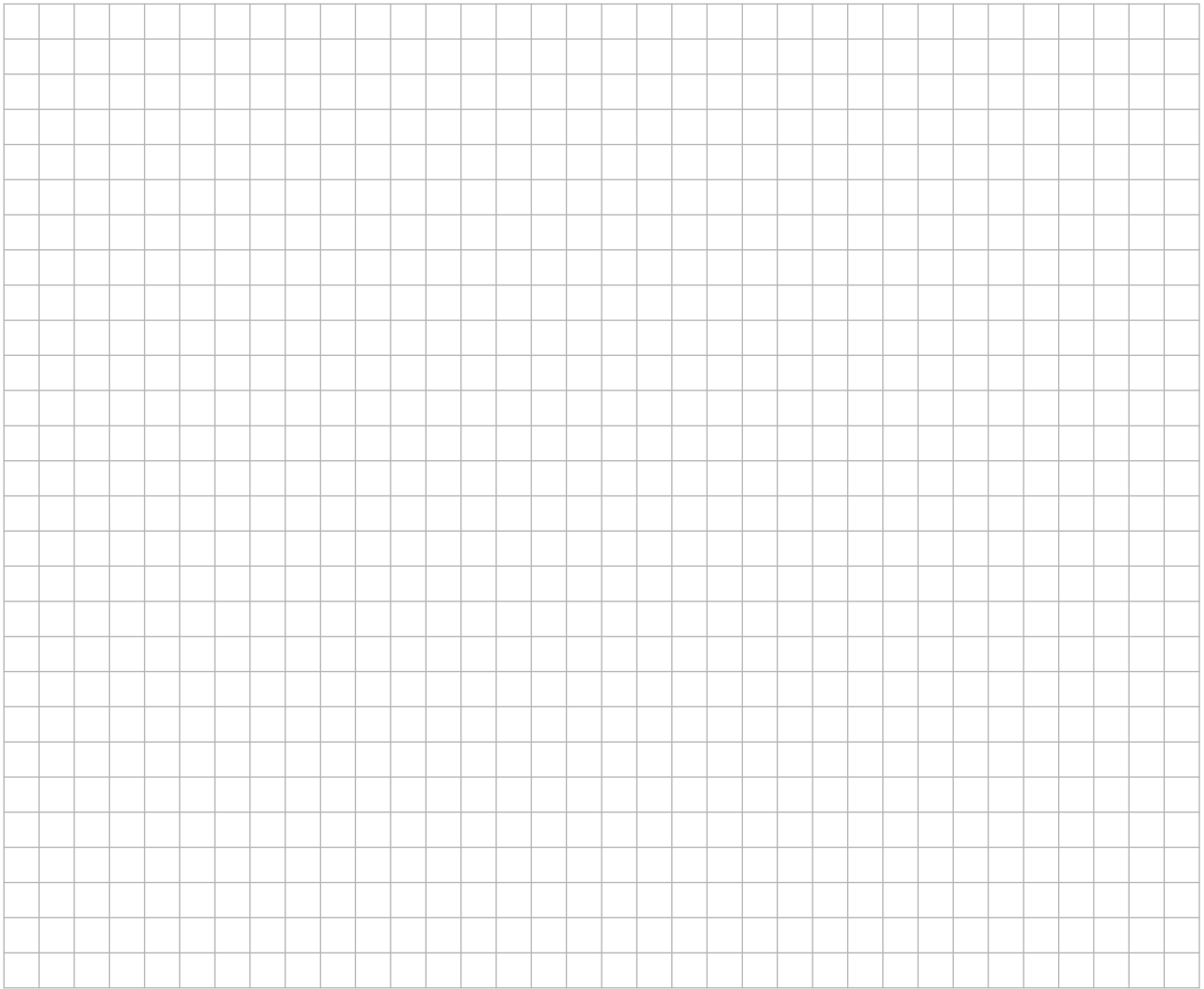
- (ii) Use your graph to find the value of  $y$  when  $x = 3.5$ . \_\_\_\_\_

 Work to be shown on the graph and answer to be written here. \_\_\_\_\_.

You may use this page for extra work



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*Note to readers of this document:*

This sample paper is intended to help teachers and candidates prepare for the June 2012 examination in the *Project Maths* initial schools. The content and structure do not necessarily reflect the 2013 or subsequent examinations in the initial schools or in all other schools.

In the 2012 examination, the material in question 19 will be the same as material from the examination for candidates who are not in the initial schools. On this sample paper, the corresponding material from the 2011 examination has been inserted, as question 19, to illustrate.

Junior Certificate 2012 – Foundation Level

## Mathematics (Project Maths, Phase 2)

Sample Paper

Time: 2 hours