EXAM. NUMBER:

Total
Marks

Coimisiún na Scrúduithe Stáit
State Examinations Commission

JUNIOR CERTIFICATE EXAMINATION, 2012

MATHEMATICS – FOUNDATION LEVEL – (300 marks)

FRIDAY, 8 JUNE – AFTERNOON, 2.00 TO 4.00

Time: 2 hours

Attempt **ALL** questions. Each question carries 50 marks.

Answers and supporting work should be written into the boxes provided.

Extra pages and graph paper can be obtained from the Superintendent, if needed.

The symbol ✍ indicates that supporting work must be shown to obtain full marks.

Make and model of calculator used:

For the Superintendent/Examiner use only:

Centre Stamp

Question	Mark	Adv. Exam.
1		
2		
3		
4		
5		
6		
Total		
Grade		

1. **(a)** Find the value of:

(i) $52 + 84 =$

(ii) $78 - 35 =$

(b) Find the value of:

(i) $407 \div 11 =$

(ii) $16 \cdot 8 - 7 \times 2 =$

(iii) $\sqrt{36} =$

(iv) $2^3 =$

(c) **(i)** A circus ticket costs €16 for an adult and €8·50 for a child.
Find the total cost for 2 adults and 3 children.

2 Adults @ €16 each	= €
3 Children @ €8·50 each	= €
Total	= €

(ii)   The tickets are paid for with a €50 note and a €20 note.
How much change should be given back?

✎

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2.   **(a)** **(i)**   Write down the mode of the following numbers:

6,   1,   4,   0,   3,   4

Mode =

(ii)   Find the mean of the following numbers:

6,   1,   4,   0,   3,   4

✎   Mean =

Part (b) on next page

**(b)** The following table shows the number of different types of animal on a farm:
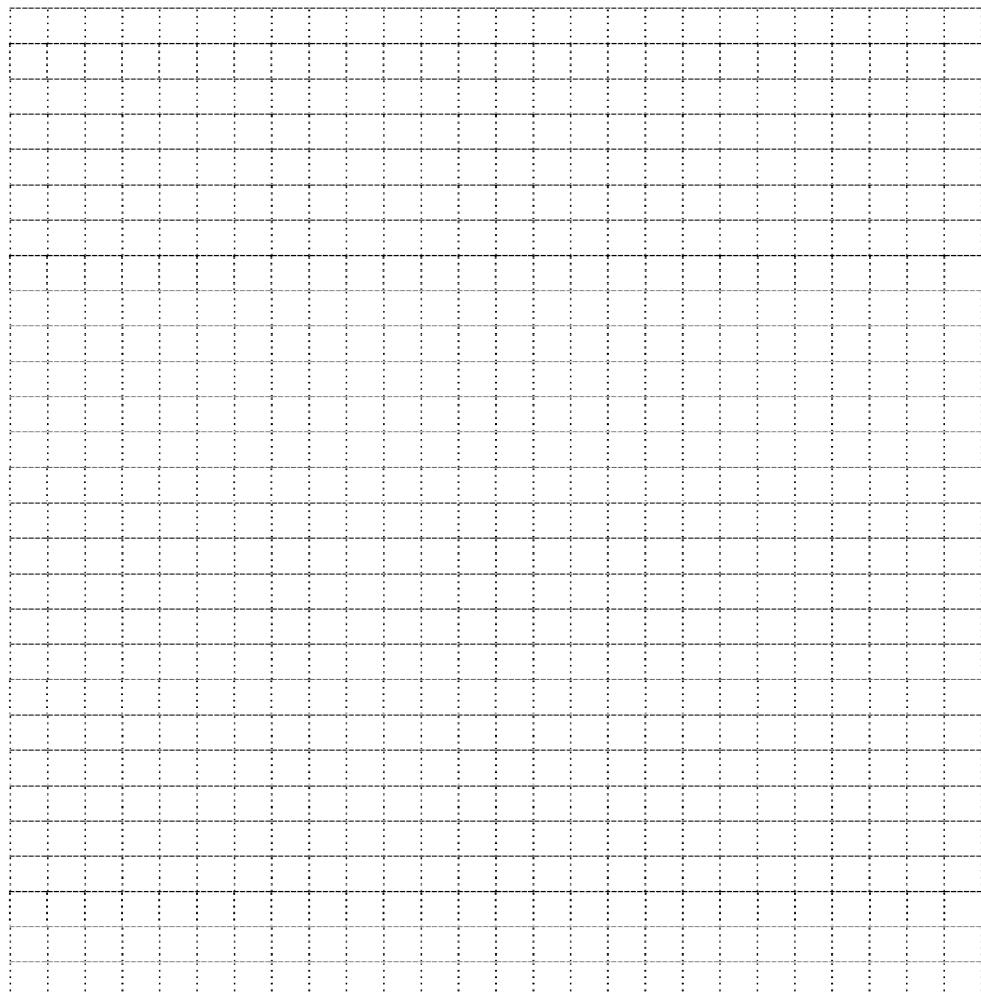
Type of Animal	Cow	Sheep	Pig	Horse	Goat
Number	12	14	10	8	6

(i) Calculate the total number of animals on the farm.

(ii) Draw a bar chart to represent the number of each type of animal on the farm. Use the grid below to draw your bar chart.

(iii) Express the number of sheep as a percentage of the total number of animals on the farm.

✎

(c) 60 students were asked to name the colour of their mobile phone.
The table shows the results.

Colour	Red	Black	Pink	Silver
Number of Students	15	10	20	15

We wish to show this information on a pie chart.

✎
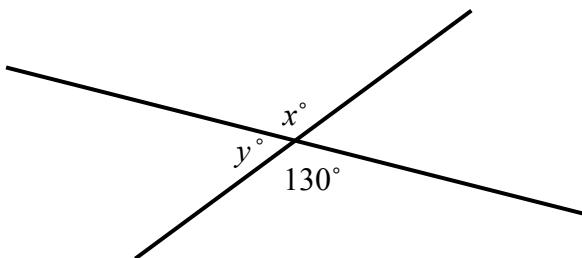
Complete the table:

Colour	Red	Black	Pink	Silver
Number of Students	15	10	20	15
Number of Degrees			120°	

Draw the pie chart.

3. **(a)** Find the value of x and the value of y in the following diagram.

$x°$

$y°$

$130°$

        (i) $x =$

✍   **(ii)** $y =$
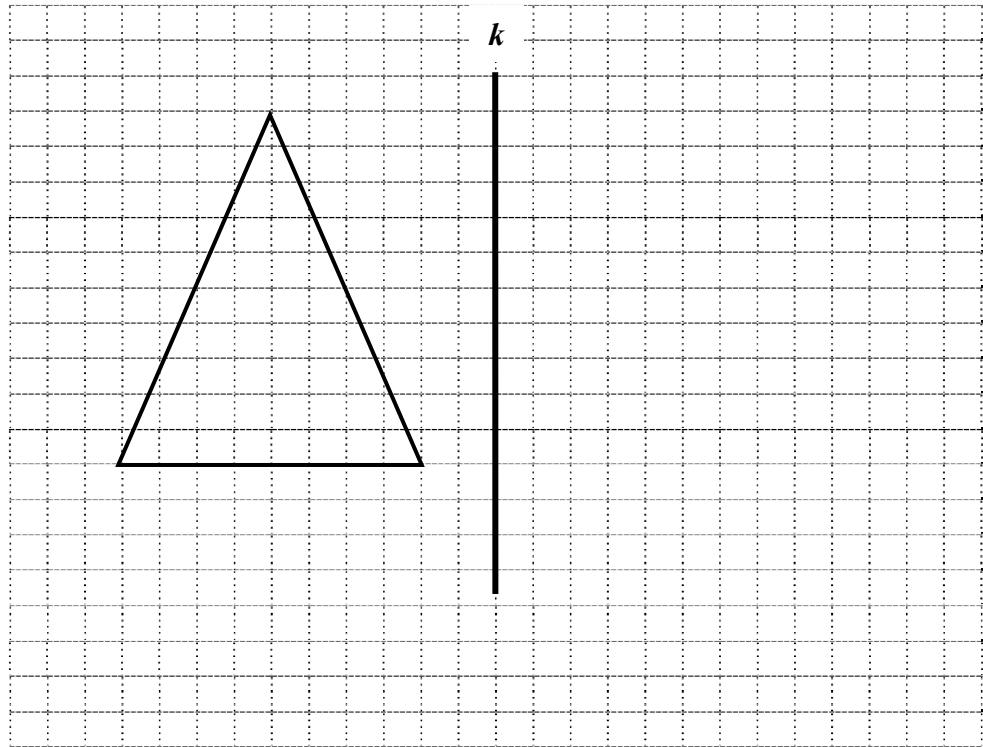
(b) **(i)** Construct a rectangle 8 cm long and 6 cm wide.

✍
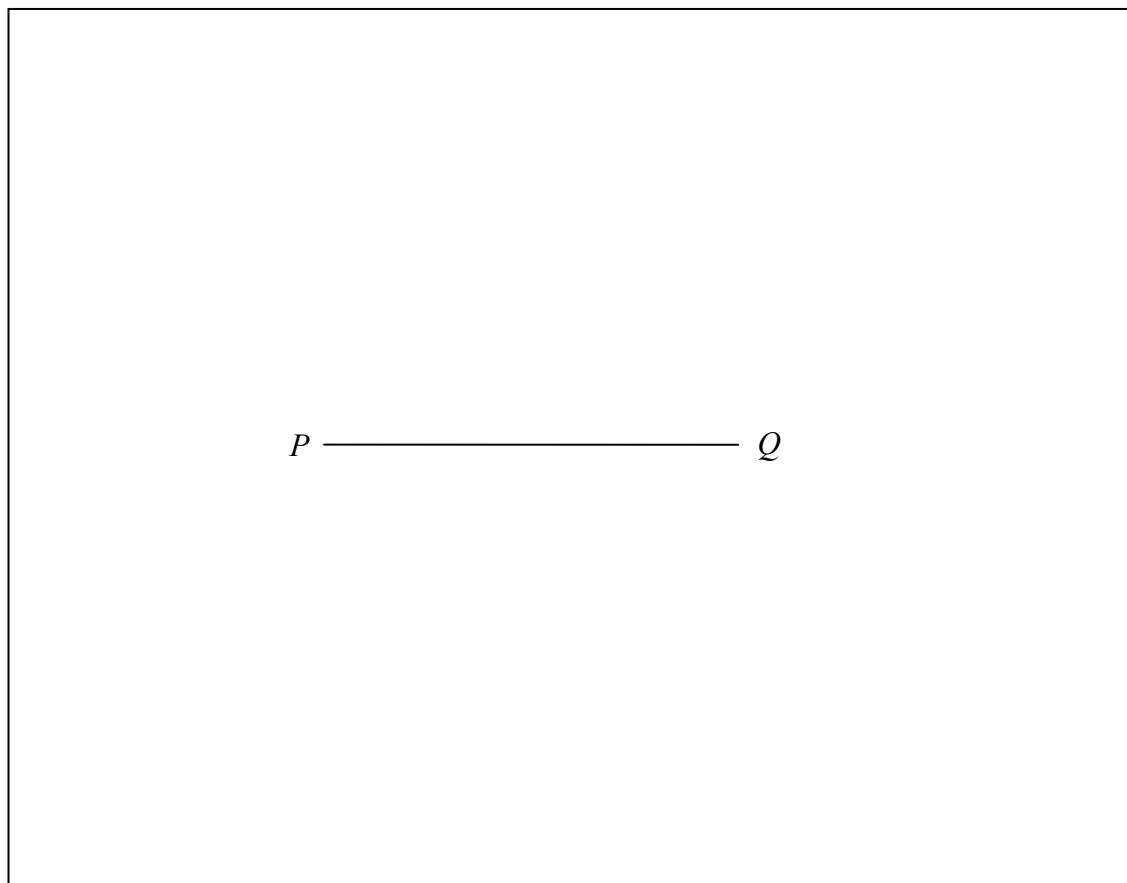
(ii) Measure, in centimetres, the length of a diagonal of the rectangle you have drawn.

The length of the diagonal is:

(c) (i) Draw the image of the triangle in the diagram under
the axial symmetry in the line k.

k

(ii) Divide the line segment $[PQ]$ into two equal parts.
Show all construction lines.

P ——————————— Q

4. **(a)** Find the value of $5a + 8b$ when $a = 2$ and $b = 3$.

(b) **(i)** Solve for x:

$$2x - 4 = 10$$

(ii) Simplify fully $x(x + 7) + 3(x - 4)$.
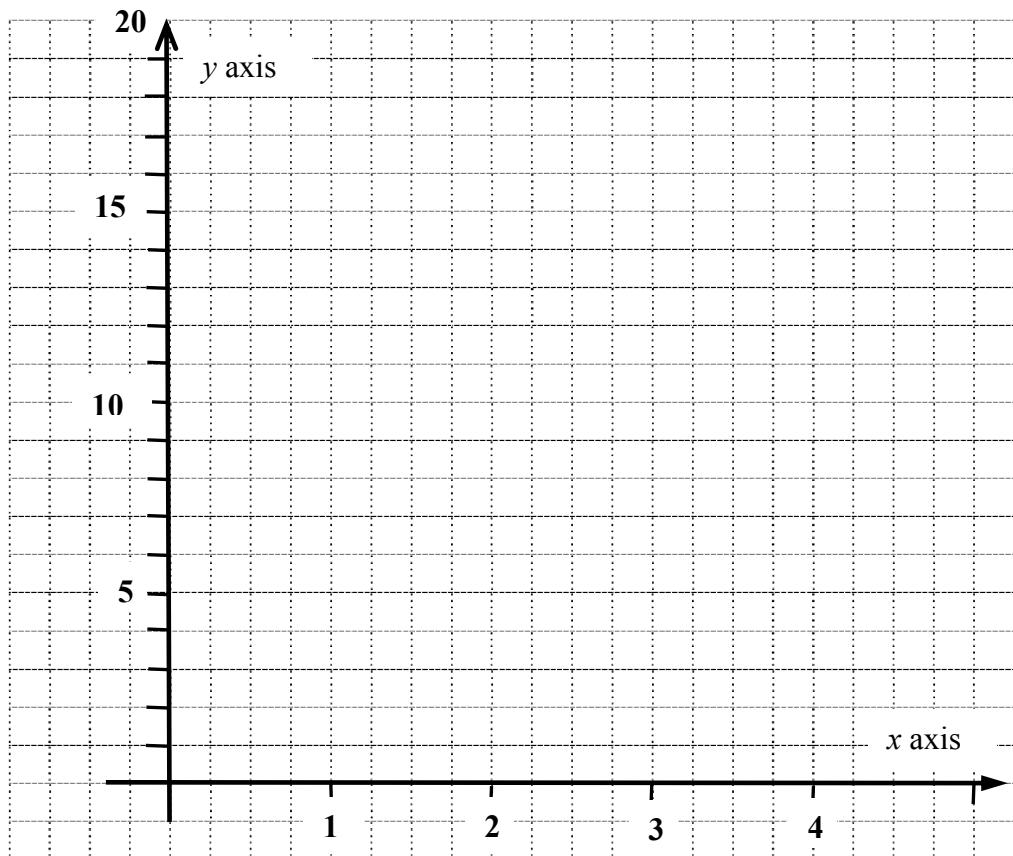
(c) **(i)** Given that $y = 3x + 4$, complete the table below.
Show all your work in the box provided.

✍
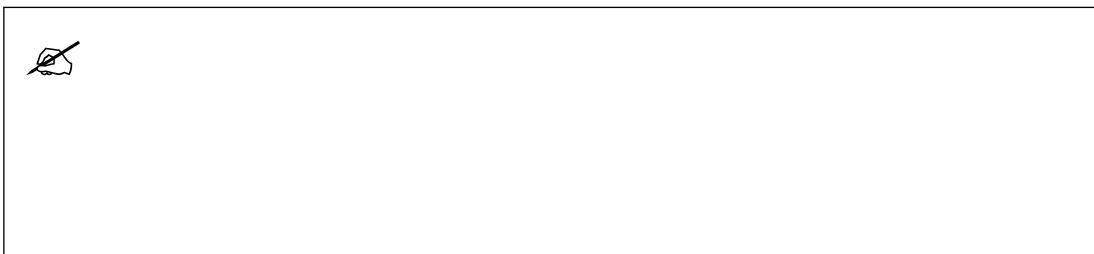
x	1	2	3	4
y			13	
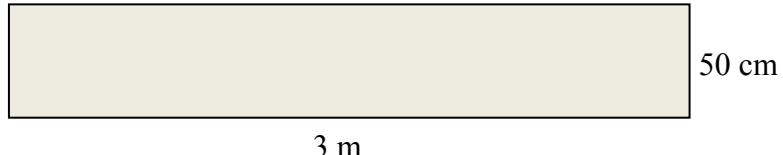
(ii) Using your answers from **(i)**, draw the graph of $y = 3x + 4$ from $x = 1$ to $x = 4$.

5. **(a)** A concert starts at 20:15 and lasts 2 hours and 50 minutes.
At what time does the concert finish?

(b) A rectangular wooden panel is 3 metres long and 50 centimetres wide.

50 cm

3 m
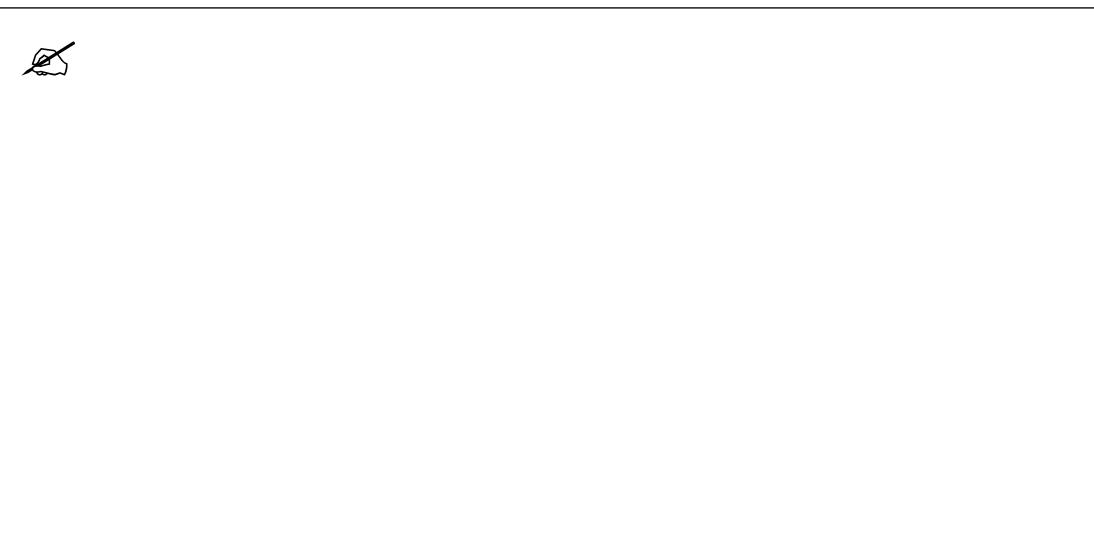
(i) Write the width of the panel in metres.   [1 m = 100 cm]
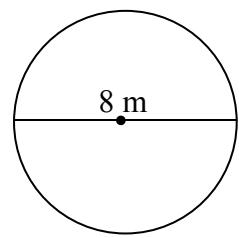
(ii) Calculate the area of the panel in m^2.

(iii) How many of these panels are needed to cover a rectangular area that measures 3 m $\times$ 5 m?
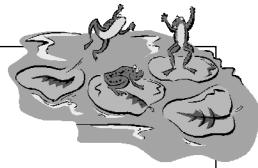
(c) A circular pond has a diameter of length 8 m.

8 m

(i) Write down the length of the radius of the pond.

Radius =

(ii) Calculate the circumference of the pond taking $\pi = 3\cdot142$.
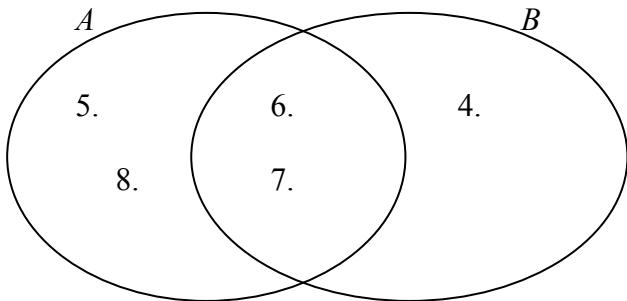
(iii) Calculate the surface area of the pond taking $\pi = 3\cdot142$.

6. **(a)** **(i)** Write $\dfrac{1}{2}$ as a decimal.

(ii) Write $\dfrac{1}{4}$ as a percentage.

(b)

(i) List the elements of A.

$A = \{\quad , \quad , \quad , \quad \}$

(ii) List the elements of B.

$B = \{\quad , \quad , \quad \}$

(iii) List the elements of $A \cap B$.

$A \cap B = \{\quad , \quad \}$

(iv) List the elements of $A \cup B$.

$A \cup B = \{\quad , \quad , \quad , \quad , \quad \}$

(c) Neela works in a sports complex.

She has a gross salary of €26 000 per year.

(i) Tax is paid at 20%.

What is the total tax due per year on Neela's gross salary?

✎
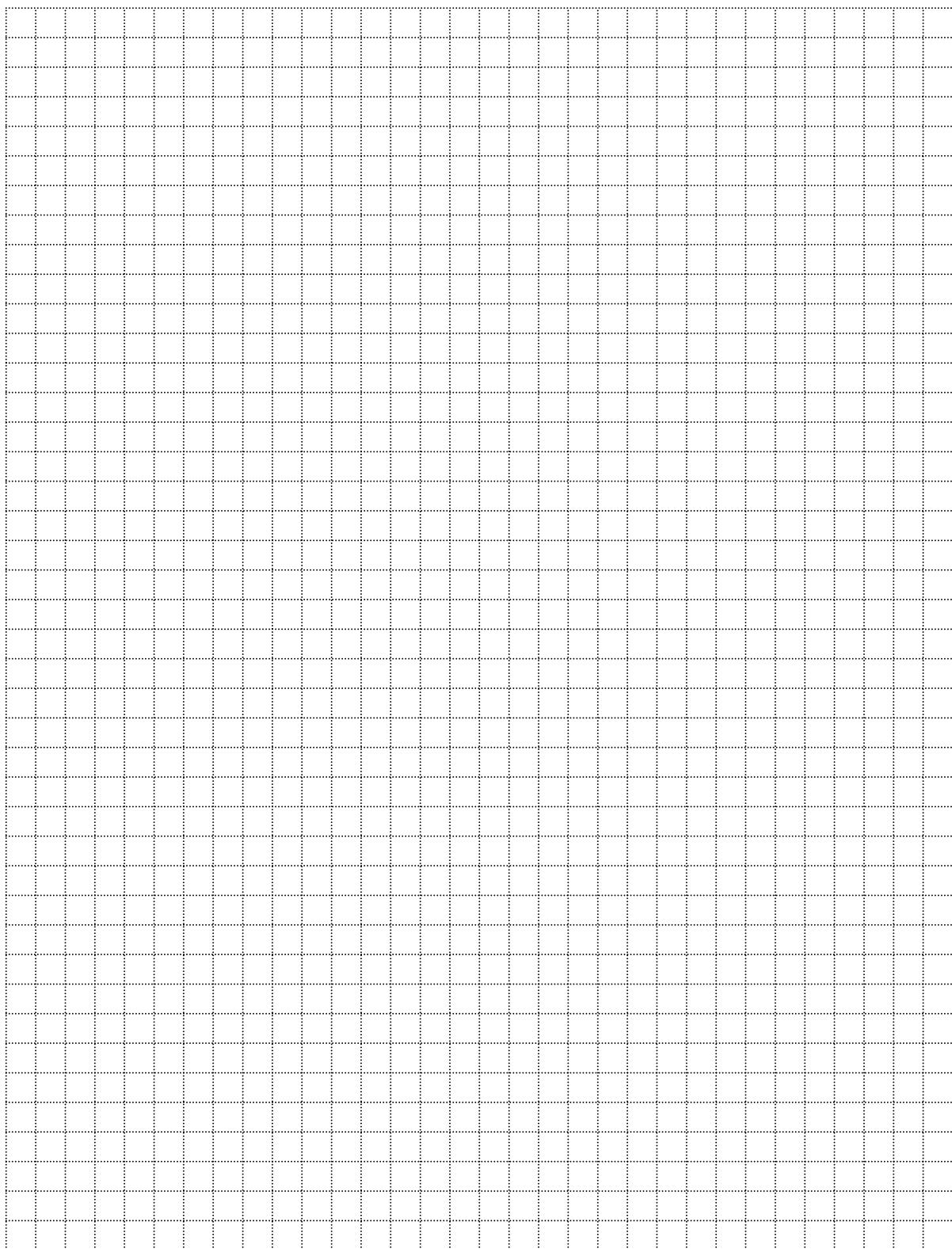
(ii) Neela has tax credits of €1800 per year.

Calculate how much tax she pays each year.

✎

(iii) Use your answer from part **(ii)** to calculate Neela's yearly take home pay.

✎

Space for extra work

Space for extra work

Space for extra work