FOR THE EXAMINER

EXAM. NUMBER:

Total Marks

Coimisiún na Scrúduithe Stáit
State Examinations Commission

JUNIOR CERTIFICATE EXAMINATION, 2009

MATHEMATICS – FOUNDATION LEVEL – (300 marks)

THURSDAY, 4 JUNE - MORNING, 9.30 TO 11.30

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
1	
2	
3	
4	
5	
6	
Total	
Grade	

1. **(a)**

(i) $59 + 23 =$

(ii) $48 \times 51 =$

(b)

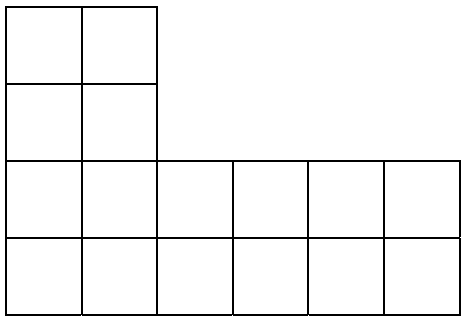
(i) $729 \div 9 =$

(ii) $9 + 2(6 - 3) =$

(iii) $(6 \cdot 5)^2 =$

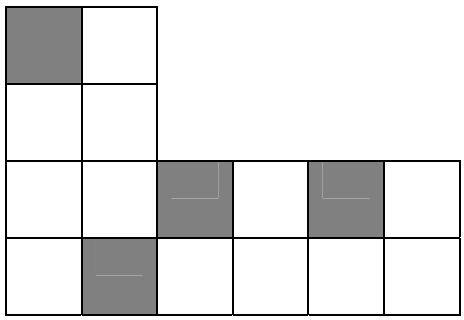
(iv) $\sqrt{46 \cdot 24} =$

(c)



(i) Count the number of tiles in the diagram above.  = 1 tile

Number of tiles =

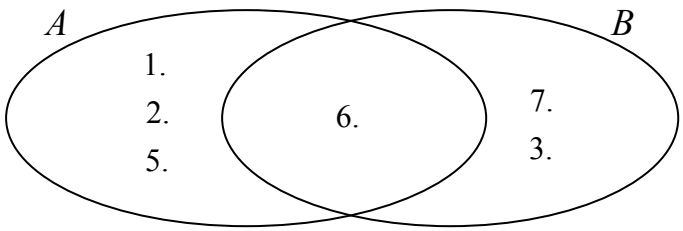


(ii) How many of these tiles are now shaded?

Number of shaded tiles =

(iii) Express the number of shaded tiles as a percentage of the total number of tiles.

2. (a)



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

(ii) $A \cup B = \{\quad , \quad , \quad , \quad , \quad , \quad \}$

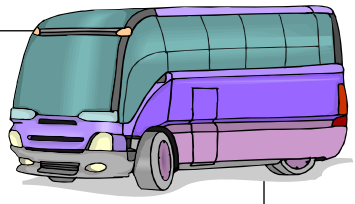
Part (b) on next page

(b) A car left Galway at 07:30 and arrived in Dublin at 10:30.

(i) How many hours did the car take to travel from Galway to Dublin?

(ii) The car travelled from Galway to Dublin at an average speed of 70 km/h.
What distance did the car travel?

(iii) A bus took 4 hours to travel the same distance.
What was the average speed of the bus in km/h?



(c) I invest €1250 in a bank for two years at 4% per annum compound interest.

(i) Calculate the interest earned at the end of the first year.

(ii) Calculate the total interest earned at the end of the two years.

3. **(a)** Find the mean of the following numbers:

18, 10, 16, 12, 9

Mean =

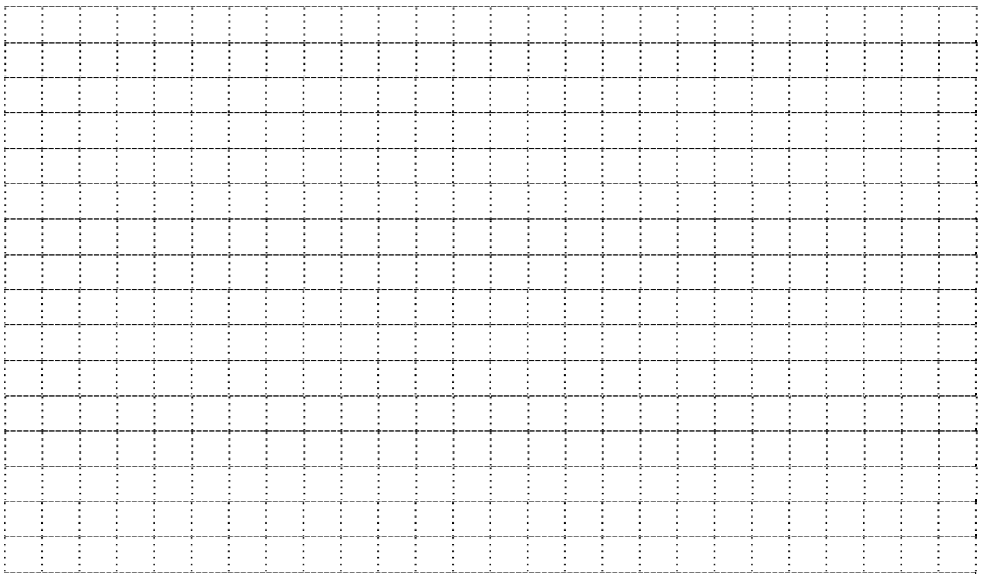
(b) The marks scored in a test by twenty students are shown below:

50	10	30	10	30
40	50	10	30	50
40	30	10	20	30
50	30	50	20	20

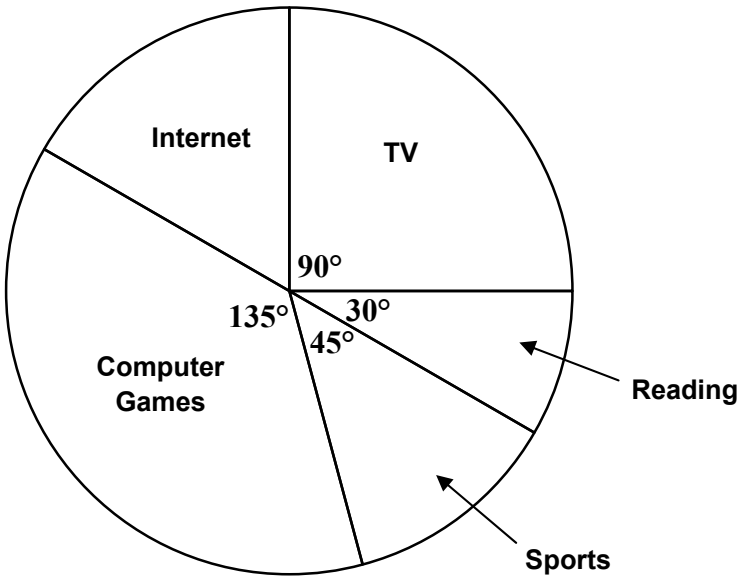
(i) Complete the table below:

Marks scored	10	20	30	40	50
Number of students		3			

(ii) Draw a bar chart to represent the scores.
Use the grid below to draw your bar chart.



(c) In a survey, students were asked to name their favourite hobby.
The results are shown in the pie-chart.

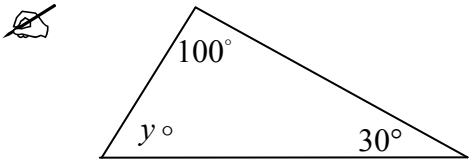


(i) Calculate the size of the angle that represents 'Internet'.

(ii) Which hobby is the most popular?

(iii) 24 students said that watching TV was their favourite hobby.
How many students were surveyed altogether?

4. **(a)** Find the measure of the angle y in the diagram below.



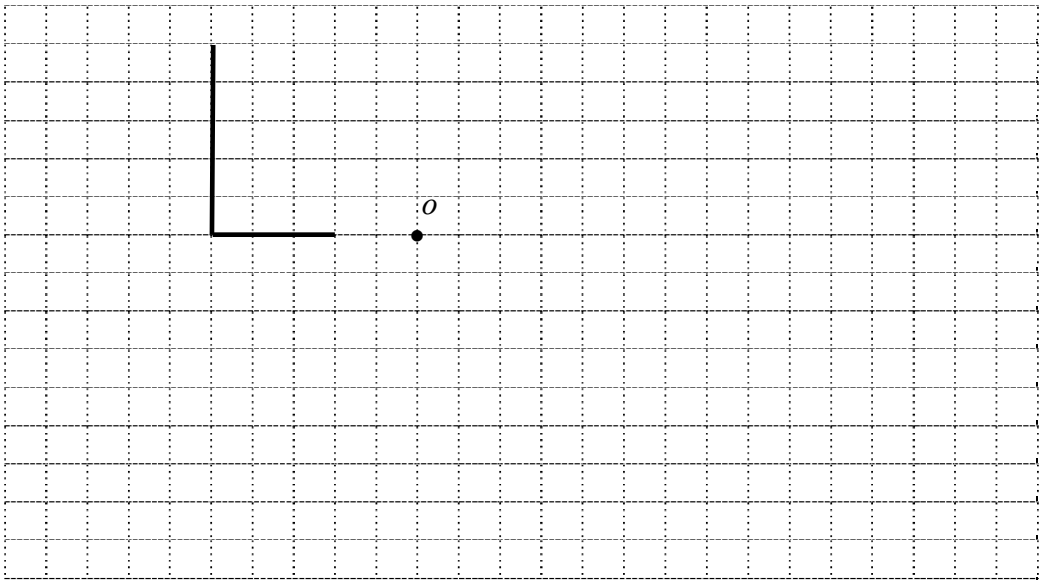
$y =$

(b) **(i)** Construct a rectangle 12 cm long and 5 cm wide.

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

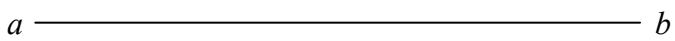
The length of the diagonal is:

(c) **(i)** Construct the image of the letter L in the diagram under the central symmetry in the point *o*.



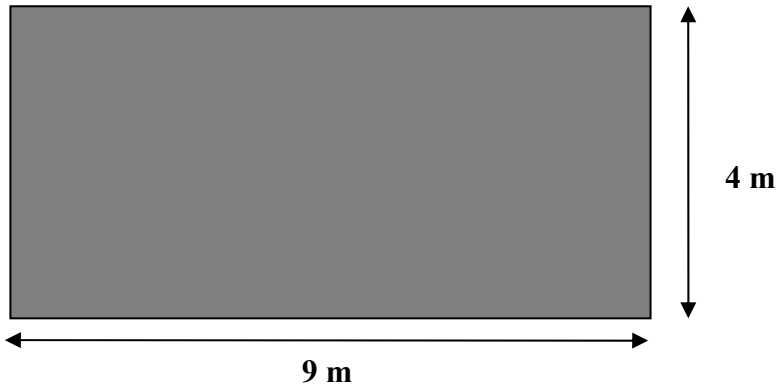
(ii) Construct a triangle *abc* with

$|ab| = 8$ cm, $|ac| = 5$ cm and $|bc| = 7$ cm.



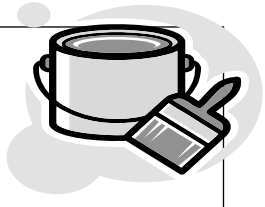
5. **(a)** Change 1250 g to kilograms.

(b) A rectangular garden wall measures 9 m × 4 m.
Mary is going to paint this wall.

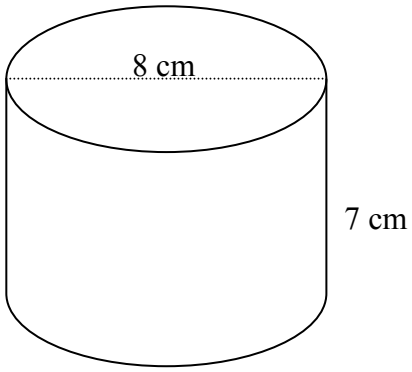


(i) Find the area of the wall in m^2.

(ii) One tin of paint covers 12 m^2 of the wall.
How many tins of paint does Mary need?



(c) The diameter of a solid cylinder is 8 cm. Its height is 7 cm.



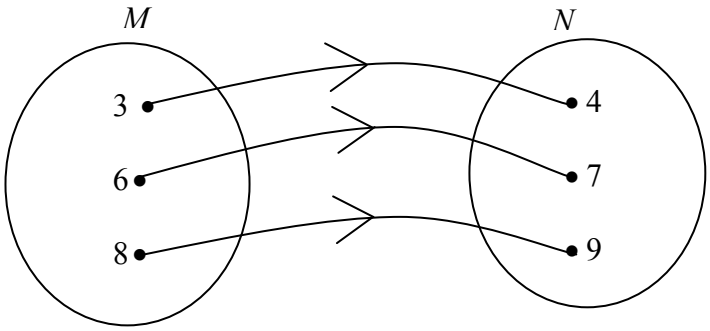
(i) Write down the length of the radius.

Radius =

(ii) Find the volume of the cylinder, taking $\pi = 3 \cdot 142$.

Volume = $\pi r^2 h$

6. **(a)** List the couples of the arrow diagram shown below.

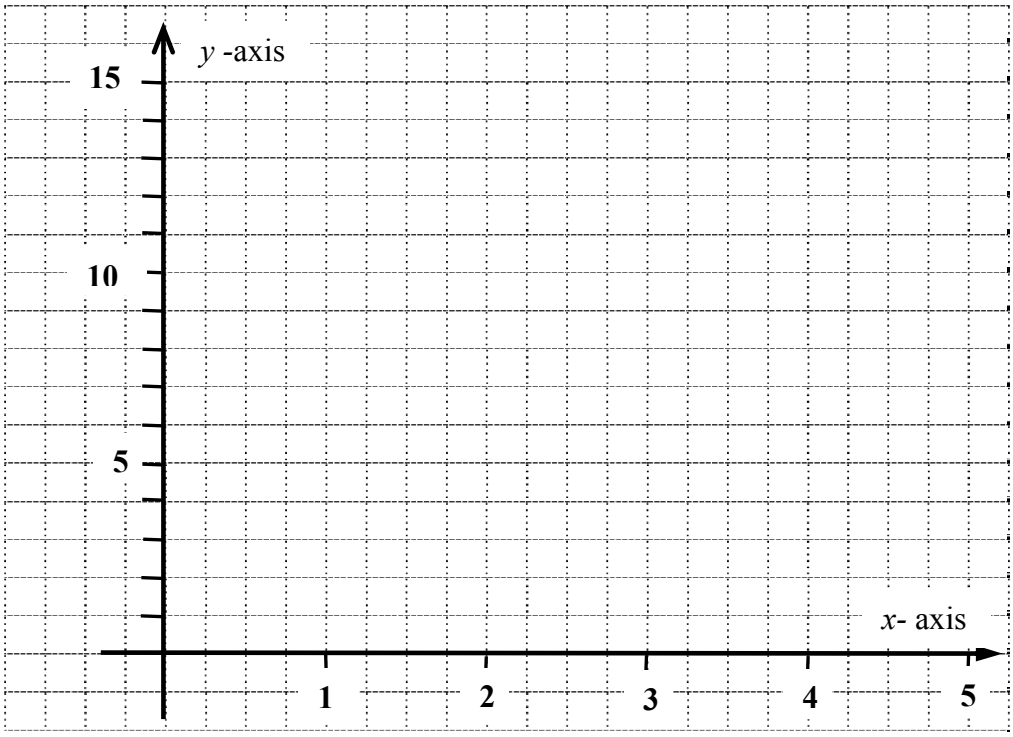


Couples: (,) (,) (,)

(b) **(i)** Given that $y = 2x + 4$, complete the table below.
Show all your work in the box provided.

x	1	2	3	4	5
y			10		

(ii) Using your answers from **(i)**, draw the graph of $y = 2x + 4$ from $x = 1$ to $x = 5$.



(iii) Use your graph to find the value of y when $x = 1 \cdot 5$.

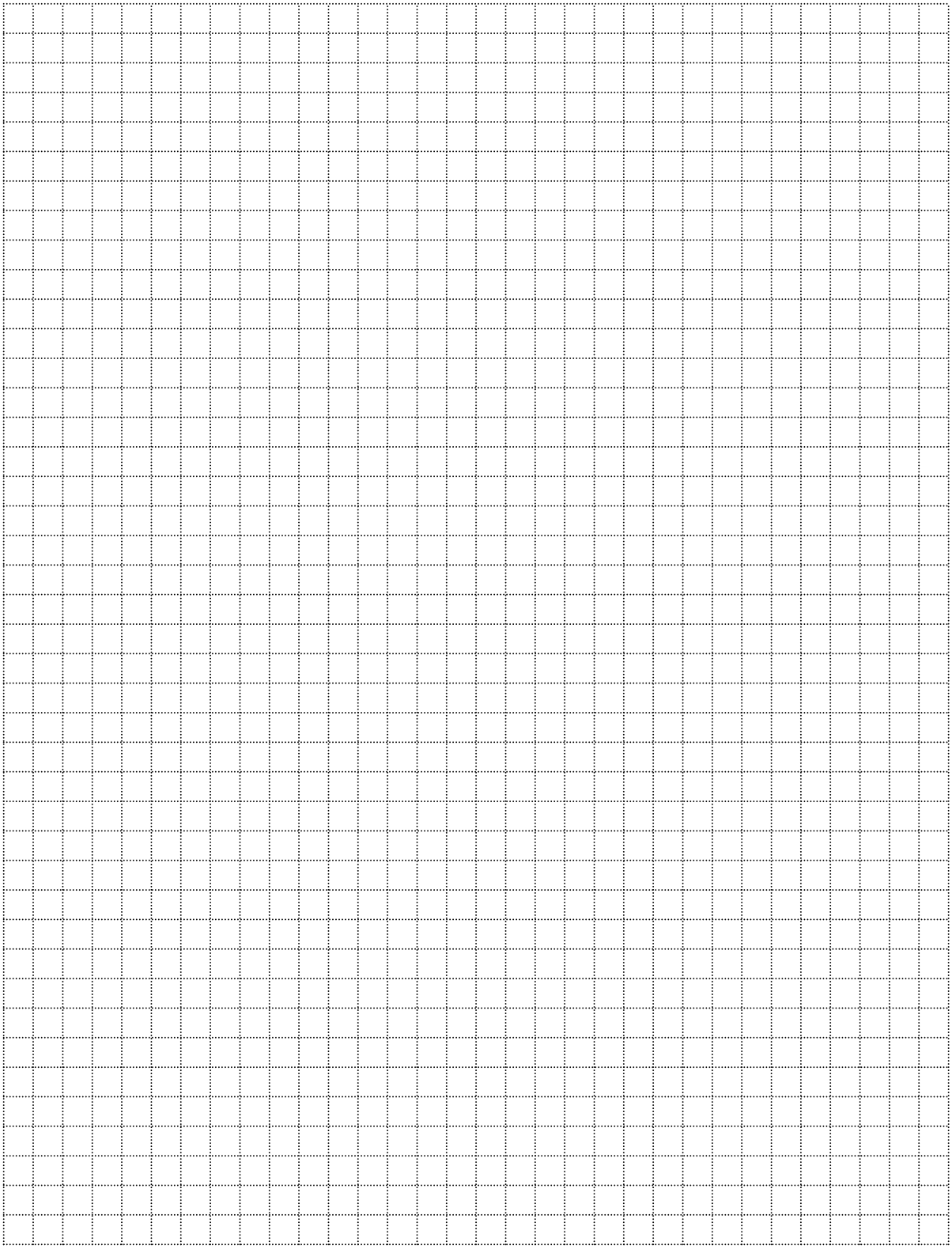
Part (c) on next page

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

$3(2x-5)=9$

(ii) Find the value of x^2+4x+5 when $x=3$.

Space for extra work



Space for extra work