DIRECTORATE FOR QUALITY AND STANDARDS IN EDUCATION
Department for Curriculum Management and eLearning
Educational Assessment Unit
Annual Examinations for Secondary Schools 2011

FORM 3 **MATHEMATICS** **TIME: 30 minutes**
(Non-Calculator Paper)

Name: _____ **Class: _____**

1	2	3	4	5	6	7	8	9	10	Total

INSTRUCTIONS TO CANDIDATES

- **Answer ALL questions.**
- **This paper carries a total of 25 marks.**
- **Calculators and protractors are NOT ALLOWED.**

1. **Fill in:**

a) 3cm = _____ mm

b) 6.2 kg =_____ g

c) 1.5 hours =_____mins

_____(3 marks)

2. a) **Simplify**:

12 : 60 : 144 = 1 : _____ : _____

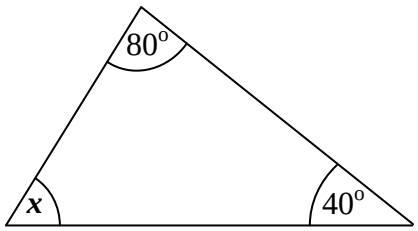
b) Beth and Amy share €300 in the ratio 3 : 2. How much does **each** girl receive?

Beth € _____

Amy € _____

_____(4 marks)

3. Work out the **size** of the angle marked ***x***.



x = _____

_____(2 marks)

4. **Calculate** 60% of €150.

€ _____

_____(2 marks)

5. a) Simplify: b) Expand:

$5a \times 3a =$ _____ $6(3a - 8) =$ _____

c) Work out the value of xy when $x = 2$ and $y = 5.5$

$xy =$ _____

_____(3 marks)

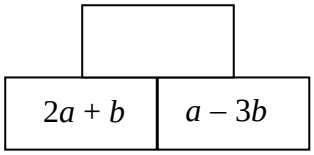
6. Work out the following:

a) $\frac{3}{4} \times \frac{8}{9}$ b) $\frac{2}{3} - \frac{1}{2}$

Ans a) _____ Ans b) _____

_____(3 marks)

7. Find the missing expression in this algebra wall. The expression is found by **adding** the expressions in the two bricks underneath.



_____(1 mark)

8. a) Put the correct inequality sign, **<** or **>** between:

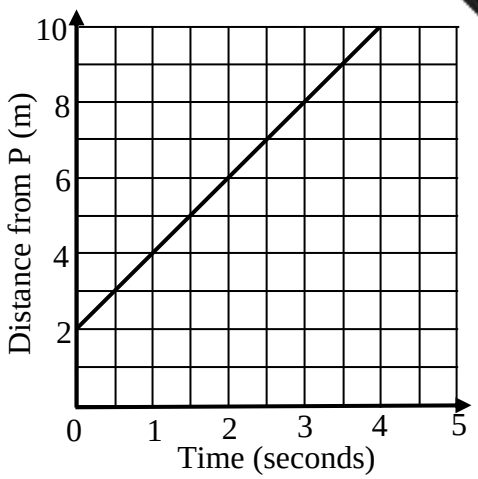
-10^oC _____ -7^oC

b) Complete:

□ × (–3) = 30

_____(2 marks)

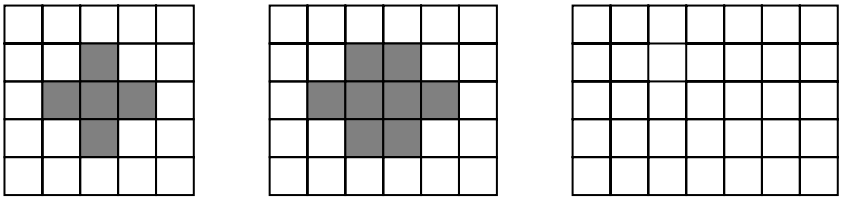
9. A bowling ball rolls in a lane. The graph shows its distance from a point P in the la
Work out the **gradient** of the line.



gradient = _____

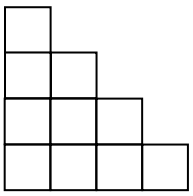
_____(2 marks)

10. a) Look at these patterns. Draw pattern 3.



Pattern 1 Pattern 2 Pattern 3

b) The figure shows a shape formed by joining the edges of 10 identical squares. Each side of the square is 2 cm long. Work out the perimeter and area.



Perimeter = _____cm Area = _____cm^2

_____(3 marks)

END OF PAPER

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FORM 3 **MATHEMATICS** **TIME: 1h 30min**
(Main Paper)

Name: _____ **Class: _____**

1	2	3	4	5	6	7	8	9	10	11	12	13	Total Main	Non Calculator	GLOBAL MARK

CALCULATORS ARE ALLOWED BUT ALL NECESSARY WORKING MUST BE SHOWN. ANSWER ALL QUESTIONS.

1. a) Calculate: $(5 \times 10^2) + 30 \times 4$ Ans: _____

b) Write 0.0456 in standard form Ans: _____

_____(2 marks)

2. a) Increase €40 by 30%.

€ _____

b) An MP3 player costs €150. During a sale a shop offers a discount of 20%. Work out the sale price.

€ _____

_____(4 marks)

3. a) i) Write down an expression for the **perimeter, *P***, of this rectangle.

P = _____cm

ii) Work out the perimeter when $x = 8$.

P = _____cm

b) Make ***x*** the subject of the formula: $y - 3\boldsymbol{x} = z$

x = _____

_____(7 marks)

4. Each exterior angle of a regular polygon is 45°.

a) Fill in: sum of the exterior angles = _____$^\circ$

b) How many sides does the polygon have?

Ans: _____ sides

c) Write down the name of this type of polygon. Ans: _____

d) Work out the size of each interior angle.

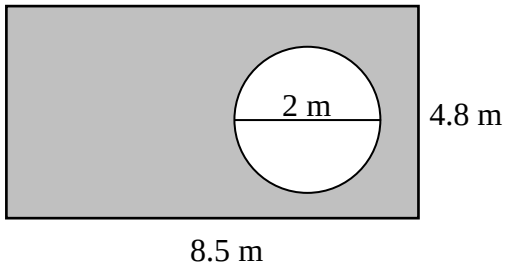
Ans: _____$^\circ$

_____(4 marks)

Name_____ Class_____

5. A duck pond is in the shape of a circle of diameter 2 m. The pond is in a rectangular garden as shown in the diagram.

a) Calculate the **area** of the pond correct to 1 d.p.



Area = _____ m^2

b) Calculate the **area** of the rectangle.

Area = _____ m^2

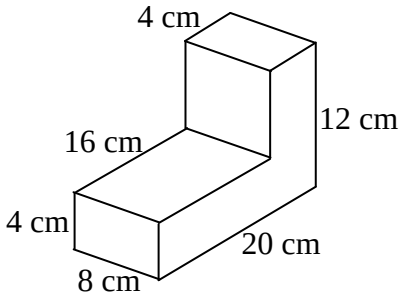
c) Calculate the **shaded area** correct to 2 d.p.

Area = _____ m^2

_____(5 marks)

6. The figure shows a solid shape. Work out:

a) the volume



V = _____ cm^3

b) how many faces (F) and edges (E) the solid has.

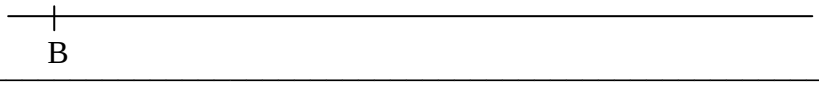
Ans b) F = _____ , E = _____

_____(6 marks)

7. Using ruler and compasses only:

a) Construct triangle ABC, right-angled at B, with sides AB = 4.5 cm and BC = 7 cm.

b) Bisect ∠ABC. Let this bisector meet AC at X. Measure BX.



BX = _____cm

_____(6 marks)

8.

Boys	9	7	8	7	5
Girls	6	7	9	8	3

The table shows the marks in a maths test of a group of girls and boys.

a) Find the **mean**, **median** and **range** of the boys and of the girls.

Boys: Mean = _____ **Girls:** Mean = _____

Median = _____ Median = _____

Range = _____ Range = _____

b) Who did better? Explain why.

_____

_____(8 marks)

9. a) Fill in the missing LOGO commands required to draw the letter T.

PD

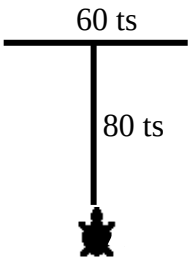
FD ___

LT 90

FD 30

RT ___

FD ___



b)

	A	B	C	D
1	9	0.005		
2				
3				

Carla types the formula =A1*B1*10 in cell C1. What value will be displayed in cell C1?

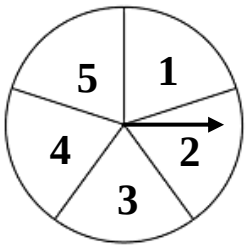
Ans: _____

_____(4 marks)

10. The picture shows a fair spinner. Claire spins the spinner twice and records the **total score**.

a) Fill in the possibility space showing all the possible outcomes.

	First Spin					
Second Spin		**1**	**2**	**3**	**4**	**5**
	1	2	3			
	2	3	4			
	3					
	4					
	5					



b) Find the probability that Claire scores:

i) a total of 10 P (10) = _____

ii) the score is an even number P (even) = _____

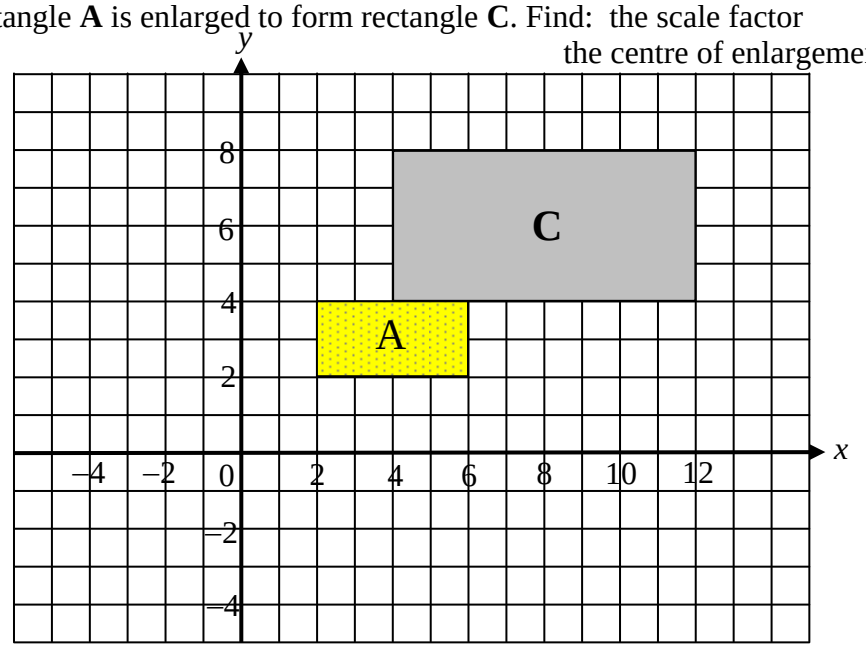
iii) the score is less than 5 P (less than 5) = _____

_____(7 marks)

11.a) i) Rectangle **A** is reflected in the *x* axis. Draw the image and label it **B**.

ii) Rectangle **A** is enlarged to form rectangle **C**. Find: the scale factor _____

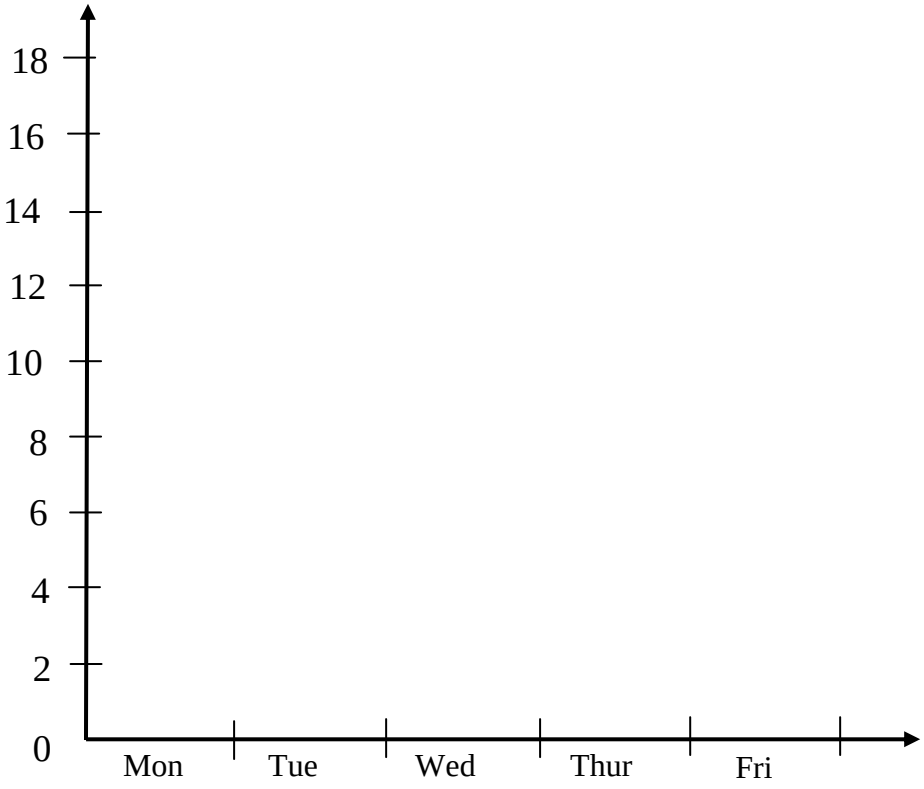
the centre of enlargement _____



b) The table shows the number of Form 1 students absent in a particular week.

Monday	Tuesday	Wednesday	Thursday	Friday
12	8	10	18	7

i) Draw a bar chart to show this information.



ii) How many students were absent during that week? Ans: _____

(7 marks)

12. a) Complete the next two terms in the following sequence.

32, 16, 8, 4, ____, ____.

b) The $\boldsymbol{n}^{th}$ term of a sequence is $3n - 1$. Work out:

1^{st} term = _____

20^{th} term = _____

c) i) **Solve**: $23 - 4\boldsymbol{n} = 3 - 2\boldsymbol{n}$ ii) **Factorise**: $36ab + 27c$

Ans i) _____ , ii) _____

_____(7 marks)

13. a) The equation of a line is given by $y = 5 - 2x$.
Complete the table for $y = 5 - 2x$.

$\boldsymbol{x}$	–1	0	1	2	3
5		5			5
$-2x$		0			–6
$\boldsymbol{y}$		5			–1

b) Use a scale of 2 cm = 1 unit on both axis and plot and draw the graph $y = 5 - 2x$.
Use the graph paper on page 8.

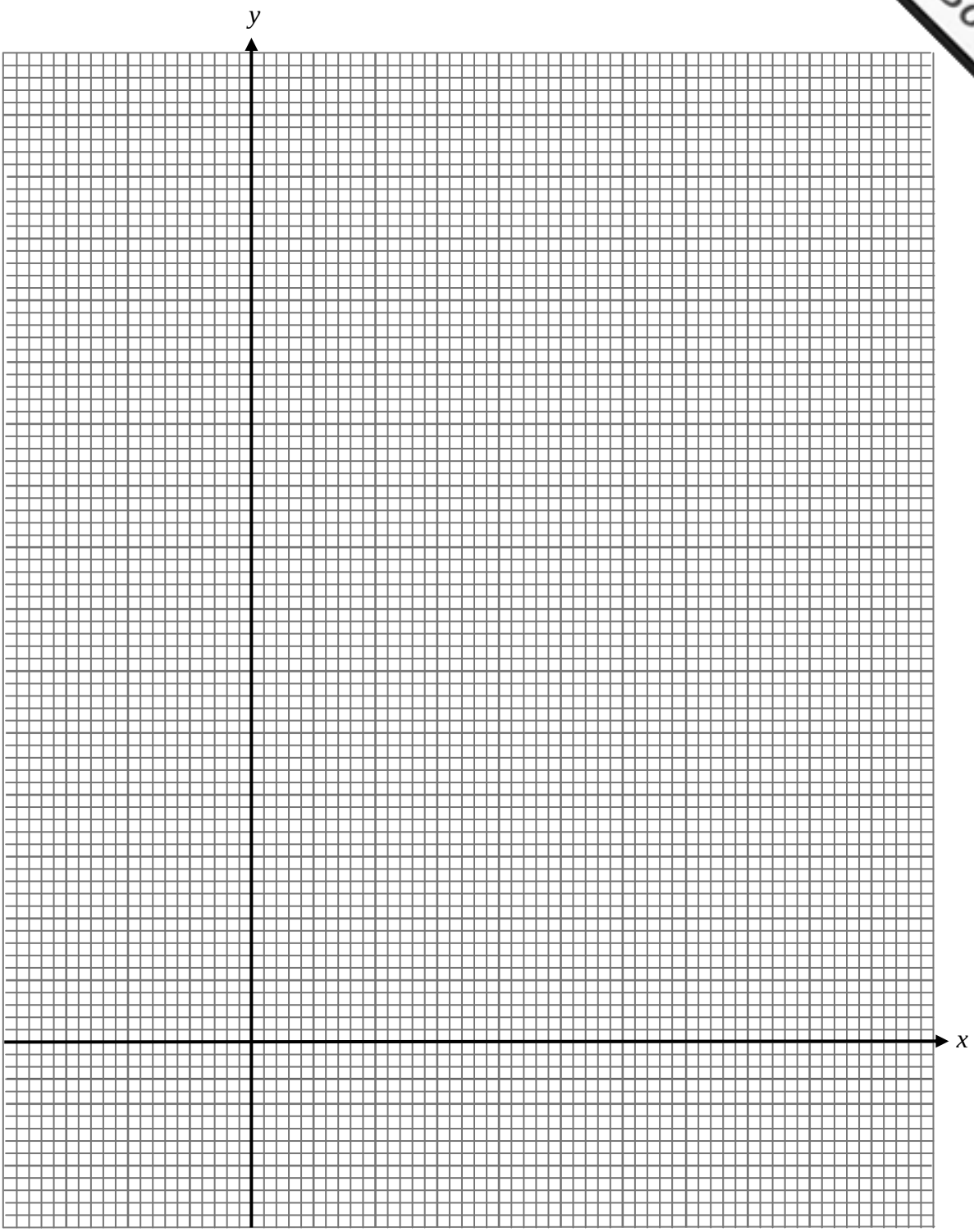
c) From your graph, find i) the y intercept

ii) the gradient

iii) the coordinates of the point at which this line cuts the x axis.

Ans i) _____ Ans ii) _____ Ans iii) _____

_____(8 marks)



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