DIRECTORATE FOR QUALITY AND STANDARDS IN EDUCATION
Department for Curriculum Management and eLearning
Educational Assessment Unit
Annual Examinations for Secondary Schools 2012

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

Name: _____   **Class:** _____

1	2	3	4	5	6	7	8	9	Total

INSTRUCTIONS TO CANDIDATES

- **Answer ALL questions.**

- **This paper carries a total of 25 marks.**

- **Calculators and protractors are NOT ALLOWED.**

1. a) Work out: 1849 + 357

Ans: _____

   b) Calculate: 23 × 12

Ans: _____

   c) Work out: 110 ÷ 4.

Ans: _____

_____ (3 marks)

2. Complete the following sequences.

   a)   1 , 4 , 7 , 10 , _____ , _____ .

   b) $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, _____ , _____ .

_____ (2 marks)

3. a) Simplify: $3x + y - 2x - 4y$

Ans: _____
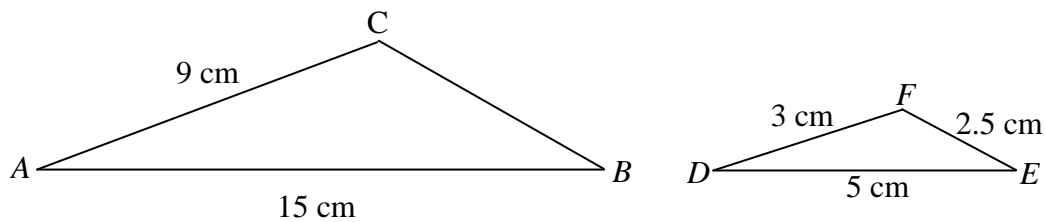
   b) Solve: $2 = 12 - 2x$

Ans: _____

_____ (3 marks)

 4. a) Fill in: $\frac{3}{7} = \frac{21}{\boxed{}}$

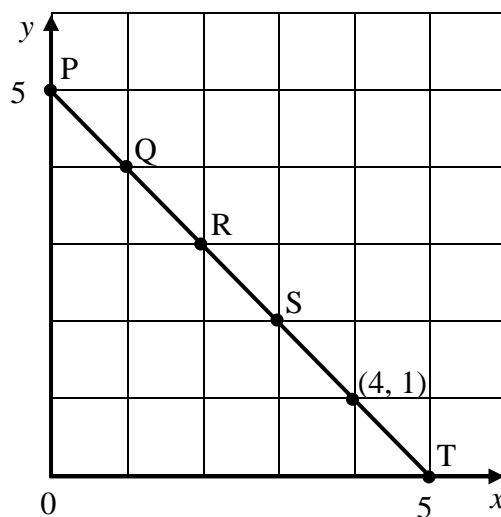   b) Work out: $\frac{2}{5} + \frac{1}{4}$

Ans: _____

_____ (3 marks)

5. Triangles *ABC* and *DEF* are similar. Work out the length of side *BC*.

C

9 cm

A _____ B
15 cm

F

3 cm   2.5 cm

D _____ E
5 cm

Ans: _____

_____ (3 marks)

6. Fill in the missing **coordinates** of the points shown on the line PT.

P = (0 , 5)

Q = (,   )

R = (,   )

S = (,   )

T = (5 , 0)
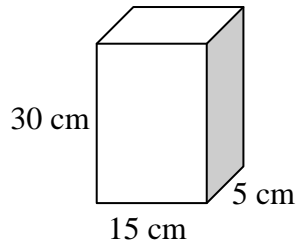
_____ (3 marks)

7. a) Write $\dfrac{7}{25}$ as a percentage.

Ans: _____

b) Work out 5% of €40.

Ans: _____

_____ (3 marks)

8. a) A new washing soap is sold in boxes, as shown. What is the volume of the box?

30 cm

5 cm

15 cm

Ans: _____

b) The measurements of various packets of washing soap are written in an excel sheet.
   What formula should be written in cell D2 to find the volume?

	A	B	C	D
1	L	B	H	Volume
2	15	5	30	

Ans: _____

_____ (3 marks)

9. Change the following:

a)   1 h 20 min = _____ minutes

b)   8950 grams = _____ kg

_____ (2 marks)

END OF PAPER

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) Factorise: $3xy + 9z$

Ans: _____

  b) Expand: $8(a^2 + ab)$

Ans: _____

  c) Write (5×10^3) as an ordinary number.

Ans: _____

_____ (3 marks)

2. a) Simplify: 18 : 36 : 24

Ans: _____

  b) Francesco reads 8 pages a day and he will finish reading a book in 20 days.

  i) How many pages are there in the book?   Ans: _____

  ii) How long will it take him to read the same book when he reads 5 pages a day?

Ans: _____

_____ (3 marks)

3. A coin and a 5 sided spinner are tossed together.

a) Complete the possibility space.

5 Sided Spinner

	1	2	3	4	5
Head (H)	H,1				
Tail (T)					

Coin

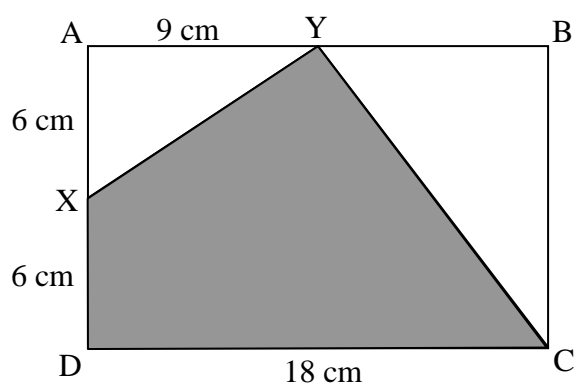b) What is the probability of getting a Tail and a 5?   Ans: _____

c) What is the probability of getting a Head and an even number?   Ans: _____

_____ (5 marks)

4. a) Work out the **area** of **rectangle** ABCD.

Ans: _____

b) Work out the **area** of **triangle** BCY.

A   9 cm   Y   B

6 cm

X

6 cm

D   18 cm   C

Ans: _____

c) Calculate the **area** of the **shaded** part.

Ans: _____

_____(6 marks)

5. a) Julia wants to raise money to buy an MP3 player by selling handmade cards at €1.50 each.
The MP3 player costs €114. How many cards must she sell?

Ans: _____

b) A laptop costs €530 excluding VAT.

What is the cost of the laptop when 18% VAT is added?

Ans: _____

_____ (5 marks)

6. a)

		Question	Expression	Answer
i)		Simplify if possible	$5a + 2a$	
ii)		Simplify if possible	$3p - q$	
iii)		Expand	$4(2x + 5)$	
iv)		Expand	$2(3a^2)$	

b) i) $V = \dfrac{q+r}{p}$. Work out the value of V when $p = 2$, $q = 3$ and $r = 6$.

Ans: _____

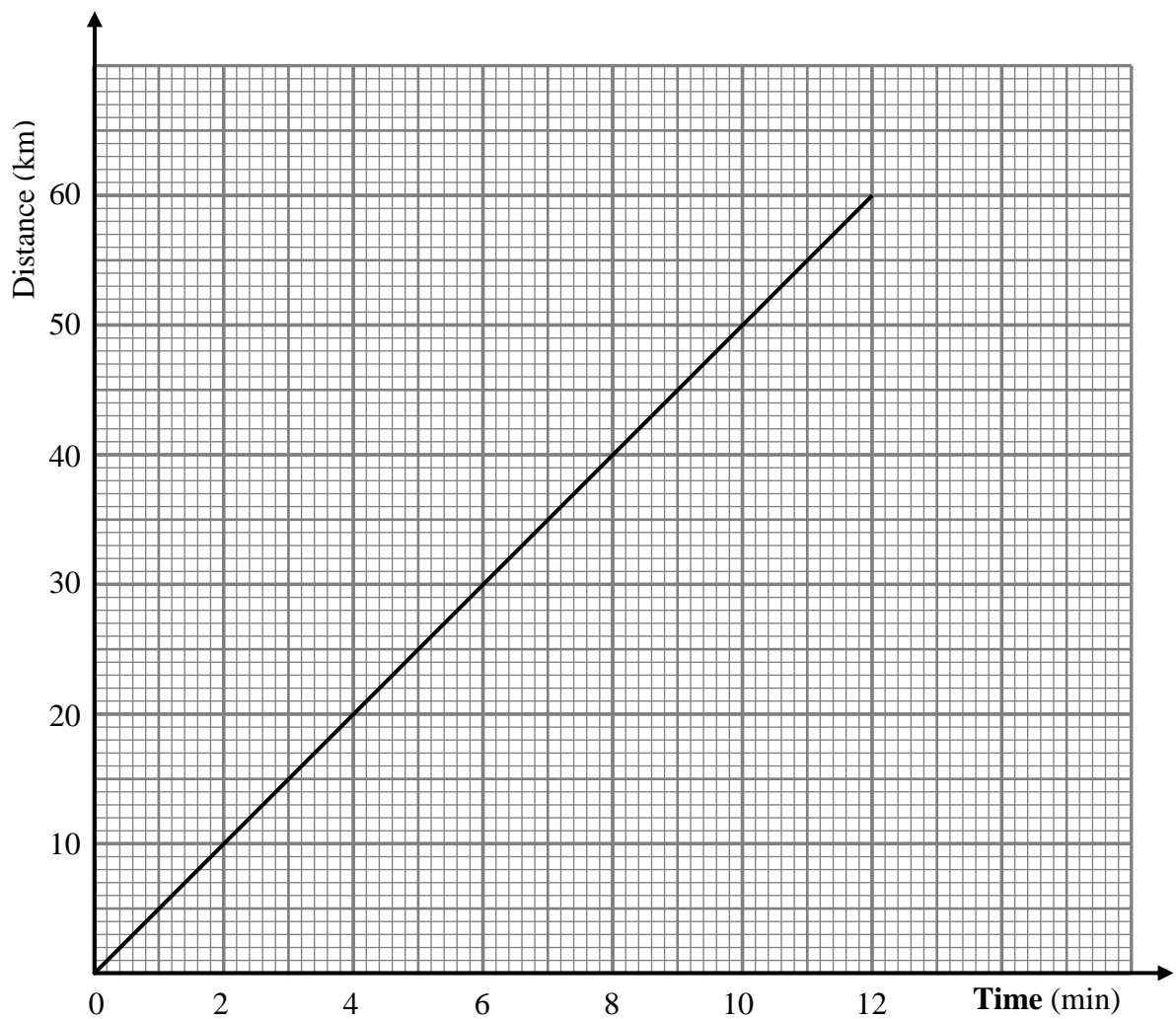ii) $V = \dfrac{q+r}{p}$. Make r the subject of the formula.

Ans: _____

_____ (8 marks)

7. a) The graph shows the distance in km, travelled by a car on a highway, against time

   i) Work out the **gradient** of the graph.   Ans: _____

   ii) Find the **time** taken to travel 42 km.   Ans: _____

b) A group of athletes covered the following distances in km.

$$13 , 16 , 17 , 11 , 14 , 13 , 16 , 12 , 15 , 18 , 14 , 17 , 19.$$

   i) How **many** athletes took part?

                                                            Ans: _____

   ii) What was the **mean** distance covered?

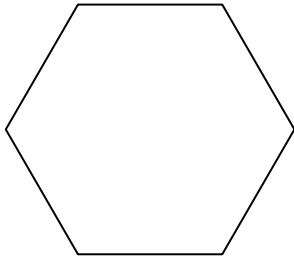   Ans: _____

_____ (7 marks)

8. a) What is the name of a **six** sided polygon? Ans: _____

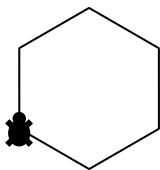   b) Calculate the sum of the interior angles of a six sided polygon.

   Ans: _____

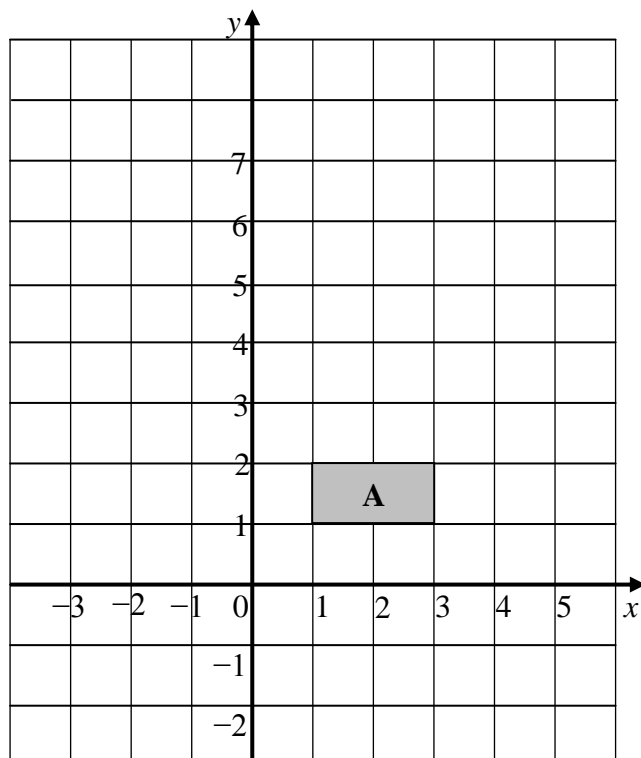   c) What is the size of **each** interior angle of a regular six sided polygon?

   Ans: _____

   d) Fill in the logo program that draws the regular polygon shown of side 50 units.

   PD
   REPEAT ____ [FD _____ RT 60]

   _____ (6 marks)

9.

   a) **Reflect** shape A in the *x* axis and label it **B**.

   b) **Translate** shape A, 2 to the right and 4 up and label it **C**.

   c) **Rotate** shape A 90° anticlockwise about (0,0) and label it **D**.

   _____ (6 marks)

10. The clock on a church has a shape of a circle with radius 2.7 metres.

   a) The tip of the minute hand touches the circumference of the clock face.
       How far does the tip of the minute hand travel in one hour? Give your answer correct to 2
       decimal places.

Ans: _____

   b) What is the **area** of the clock face? Give your answer correct to 1 decimal place.

Ans: _____

_____ (6 marks)

11. a) Complete the table for $y = 2x - 2$.

x	−3	−2	−1	0	1	2	3
$2x$	−6		−2	0			6
−2	−2		−2	−2			−2
y	−8		−4	−2			4

   b) Draw the graph of $y = 2x - 2$, using a scale of 2 cm = 1 unit on both axes.

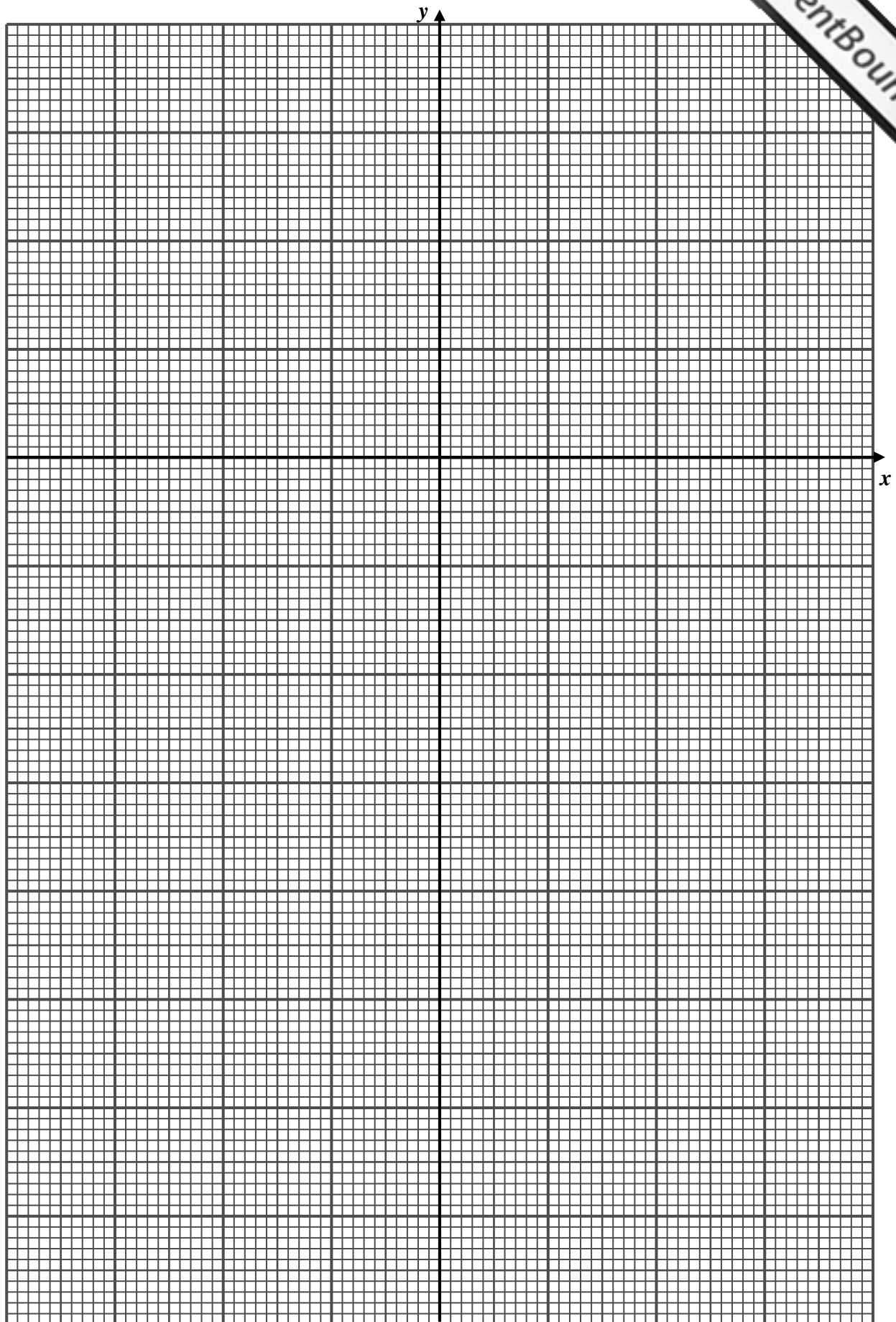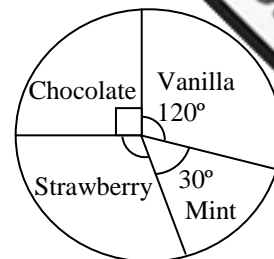   c) From your graph, find   i) the y intercept   Ans: _____

                             ii) the value of y when $x = 1.5$ Ans: _____
_____ (7 marks)

y

x

12. The pie chart shows the sales of ice cream during a school activity. The total number ice creams sold was 600.

a) What **fraction** of the ice creams sold was chocolate? _____

b) How many chocolate ice creams were sold? _____

c) Fill in the frequency table below.

Flavour	Chocolate	Vanilla	Strawberry	Mint
Frequency			200	

_____ (6 marks)

13. Use ruler and compasses only to draw triangle ABC in which ∠CAB = 60º, ∠CBA = 90º and AB = 5 cm.
   Measure the length of the sides AC and BC.

A ▬▬▬▬▬▬▬▬▬▬▬ B

AC = _____ cm

BC = _____ cm

_____ (7marks)

End of Paper