DIRECTORATE FOR QUALITY AND STANDARDS IN EDUCATION
Department for Curriculum Management and eLearning
Educational Assessment Unit
Annual Examinations for Secondary Schools 2013

7

FORM 2 **MATHEMATICS** **TIME: 30 minutes**
Non Calculator Paper

Name: _____ **Class: _____**

Question	1	2	3	4	5	6	7	8	9	Total
Mark										

Instructions to Candidates

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

1. (i) Write 126 as a product of its prime factors.

Ans. _____

(ii) Work out the HCF of 84 and 126.

Ans. _____

_____(4 marks)

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

Ans. _____

_____(2 marks)

3. Arrange in order, **smallest first**:

$\frac{1}{4}$ $\frac{23}{100}$ 0.25 $\frac{13}{50}$

Ans. _____

_____(2 marks)

4. The prices of 5 pizzas are:

€8.50 €8.75 €10.50 €11.00 €11.25

(i) The mean price is _____.

(ii) The median price is _____.

_____(3 marks)

5. Estimate the value of:

$$\frac{29.872 - 4.515}{1.571 + 3.124}$$

Ans. _____

_____(2 marks)

6. (a) Write $\frac{17}{6}$ as a mixed number. Ans. _____

(b) Work out:

(i) $\left(\frac{1}{2} - \frac{2}{7}\right) \times \frac{7}{9}$ (ii) $1\frac{2}{3} + \frac{2}{15}$

Ans. _____ Ans. _____

_____(5 marks)

7. Work out:

(a) $7 \times -3 =$ Ans. _____

(b) $-25 \div -5 =$ Ans. _____

(c) $15 - 5 \times 2 =$ Ans. _____

_____(3 marks)

8. Henry wants to sketch the figure below using LOGO commands.

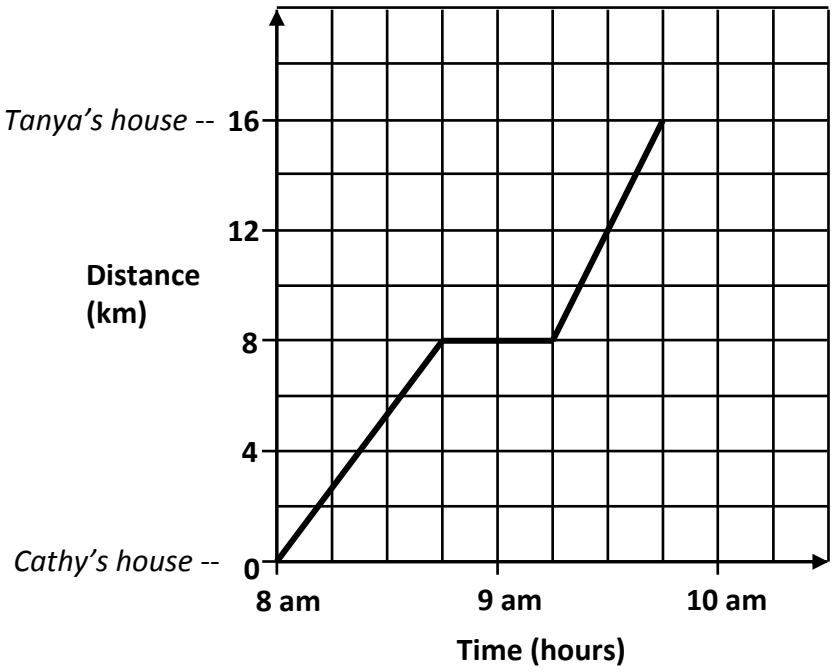
He types the following commands:

PD RT90 FD50 RT90 FD100 RT90 FD50 BK100

There is **one** mistake.
Mark the mistake with a ✕ and write the correct command. _____

_____(1 mark)

9. Cathy leaves her house at 8.00 a.m. and cycles to Tanya's house.



(i) How far is Tanya's house from Cathy's?

Ans. _____

(ii) How long does it take Cathy to get to Tanya's house?

Ans. _____hours

On the way Cathy decides to stop for a rest.

(iii) How many minutes did Cathy spend resting?

Ans. _____ minutes

_____(3 marks)

End of Paper

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FORM 2 **MATHEMATICS** **TIME: 1h 30min**
Main Paper

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	Total Main	Non Calc	**Global Mark**
Mark																

DO NOT WRITE ABOVE THIS LINE

Name: _____ **Class:** _____

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

1. Use your calculator to work out:

(a) 14% of 85 kg Ans: _____ kg

(b) 2.262 − 0.1076, correct to 1 decimal place. Ans: _____

(c) $\frac{27.1+76.4}{2.3\times1.5}$ = Ans: _____

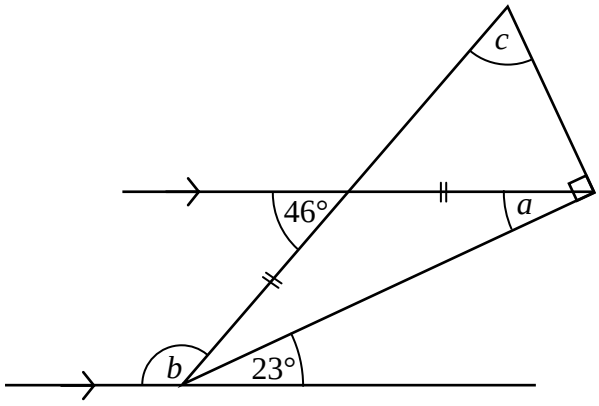
_____(5 marks)

2. (a) Which of the following **quadrilaterals** has rotational symmetry of order 2 and 2 lines of symmetry?

rectangle	**parallelogram**	**square**	**kite**

Ans: _____

(b) Find the size of each angle marked with a letter:
Show all your working.



Ans: a = _____°

Ans: b = _____°

Ans: c = _____°

_____(7 marks)

3. (a) A yoghurt tub weighs 150g. It contains 12g fat. What percentage of the yoghurt is fat?

Ans: _____%

(b) Jane earned €18 000 in 2012. In 2013 she is given a 7% increase in her pay. How much does she earn in 2013?

Ans: €_____

_____(5 marks)

Name_____ Class_____

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4. (a) The length of a model aeroplane is 14 cm. The length of the actual aeroplane is 28 m. Write down the ratio of the length of the model aeroplane to the length of the actual aeroplane. **Give your answer in its simplest form**.

Ans: ____:____

(b) A youth club raises €900 for charity. The money is divided among three charities: Aid Abandoned Animals, Care for a Cat Campaign and Fund for a Forest, in the ratio 3 : 5 : 7. How much does the Fund for a Forest receive?

Ans: €_____

_____ (5 marks)

5. (a) **Factorise completely:** $6h + 48$

Ans: _____

(b) **Solve the equation:** $5x = 14 - 2x$

Ans: _____

(c) Tim and Stephanie simplify the expression:

$$\mathbf{4(}x\mathbf{ + 5) - 2(}x\mathbf{ - 3)}$$

Tim's answer is $\mathbf{2}x\mathbf{ + 26}$.

Stephanie's answer is $\mathbf{2}x\mathbf{ + 14}$.

Who is right? _____

Show all your working.

_____(7 marks)

6. Paul, Joe and Tom go shopping. Paul spends €x.
Joe spends €6 more than Paul.
Tom spends twice as much as Paul.

(a) Write expressions in terms of x for the money:

(i) Joe spends. _____

(ii) Tom spends. _____

(b) The three children spend a total of €54. Write an equation showing this information.

_____

(c) Solve your equation to find how much Paul spends.

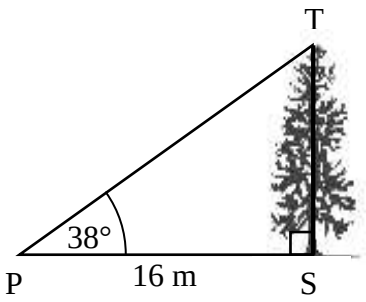
Ans: €_____

_____ (5 marks)

Name_____ Class_____

7. Alice needs to know the height of a tree. She marks a point P on the ground 16 m from the bottom of the tree. The angle of elevation from P to the top of the tree T is 38°.

(i) Using a scale of 1 cm to 2 m, construct the right-angled triangle as a scale drawing.

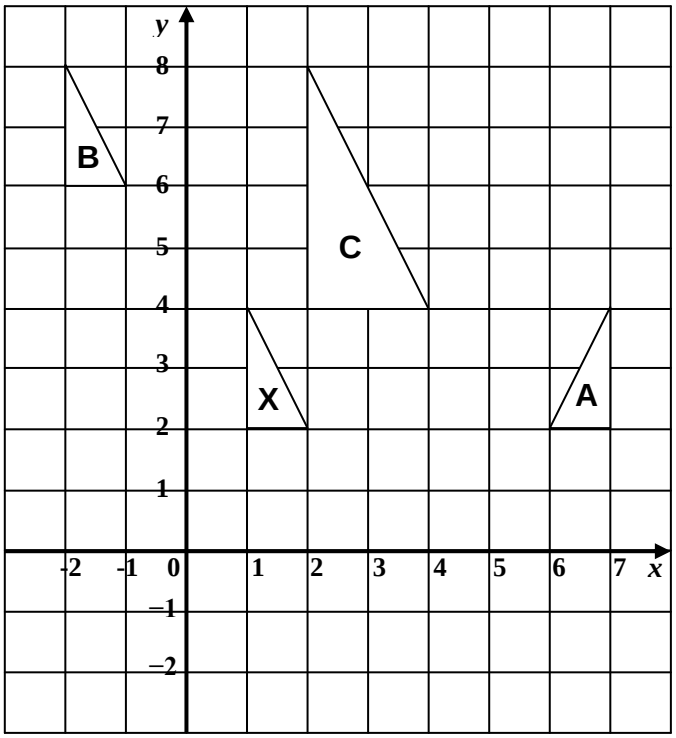


(ii) Use your scale drawing to find the height of the tree.

Ans: _____m

_____(5 marks)

8.



(a) Fill in the blanks to describe the following transformations:

(i) The transformation that maps triangle **X** to triangle **A**:

_____in the line _____.

(ii) The transformation that maps triangle **X** to triangle **B**:

_____by column vector _____.

(iii) The transformation that maps triangle **X** to triangle **C**:

_____scale factor _____, centre the origin.

(b) On the above grid, rotate triangle **X** clockwise 90° about the origin.
Label this triangle **D**.

_____(7 marks)

9. A spinner has 5 sides, numbered 1 to 5. Bernard spins it twice and finds the **difference** between the two scores.

		1st Spin				
		1	**2**	**3**	**4**	
2nd Spin	**1**	0	1	2	3	
	2			1	2	3
	3	2		0	1	
	4	3	2	1	0	1
	5	4	3	2		0

(a) Complete the table to show all possible outcomes.

(b) What is the probability that the difference between the two scores is:

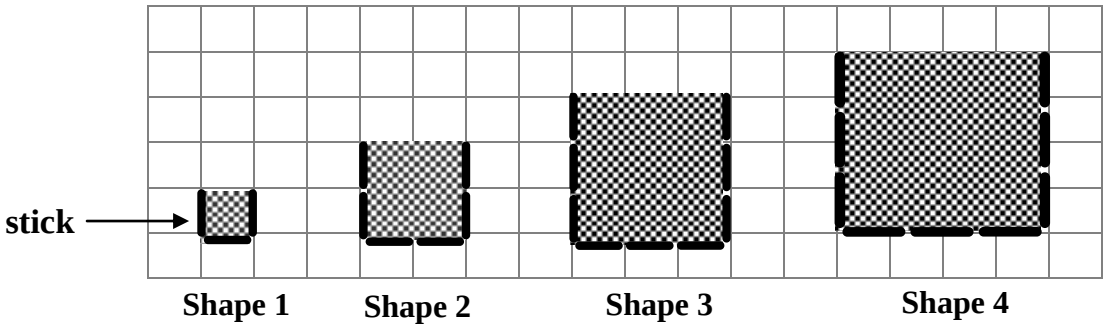
(i) 0. Ans: _____

(ii) 3 or more. Ans: _____

(iii) not 1. Ans: _____

_____(5 marks)

10. Sticks are placed on a grid to form a sequence of shapes. The squares contained inside each shape are shaded.



(i) Complete the table to show the number of sticks and the number of shaded squares in each shape.

Shape number	**1**	**2**	**3**	**4**	**5**
Number of sticks	3	6			
Number of shaded squares		4	9		

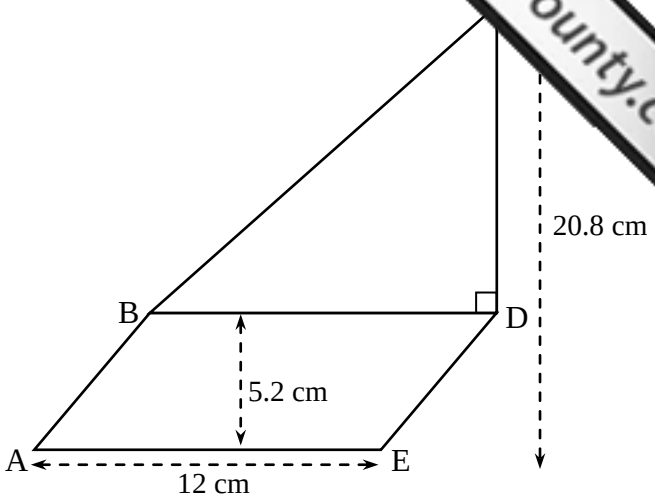
(ii) Which shape number has 30 sticks?

Ans: _____

(iii) The sequence of the number of shaded squares forms the set of _____ numbers.

_____(4 marks)

11. (a) The shape is made up of parallelogram ABDE and right-angled triangle BCD.



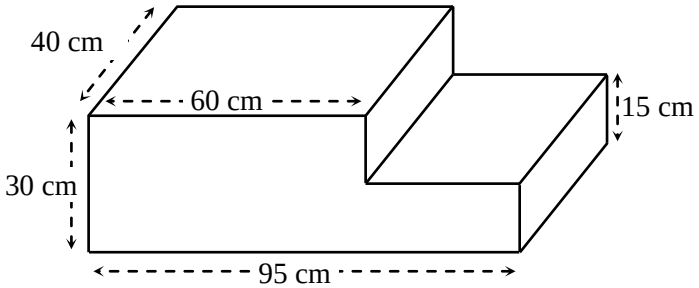
(i) Find the area of parallelogram ABDE.

Ans: _____cm^2

(ii) Find the area of triangle BCD.

Ans: _____cm^2

(b) The diagram shows a concrete structure. Calculate the volume of concrete in the structure.



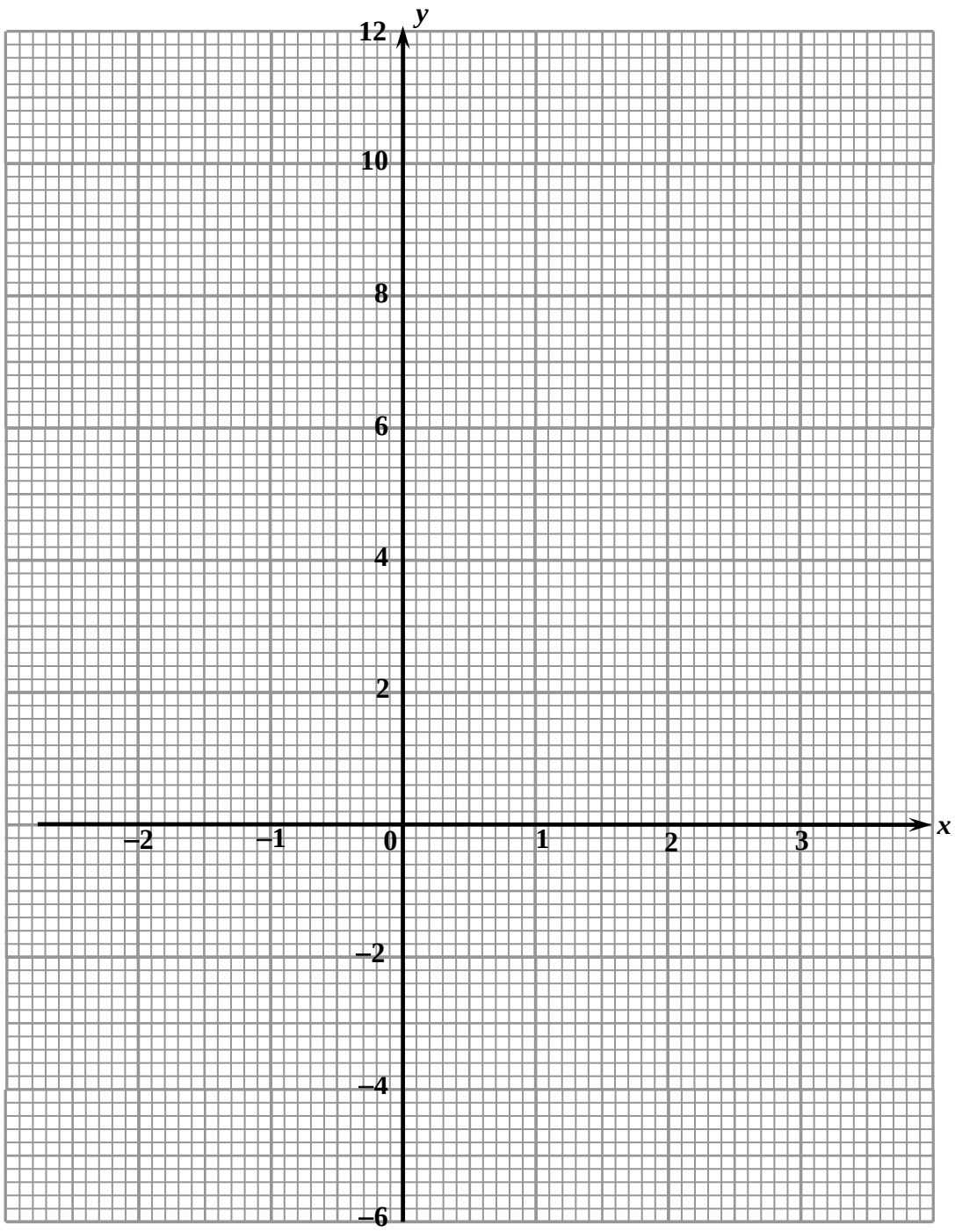
Ans: _____cm^3

_____(8 marks)

12. (i) Complete the table for $y = 3x + 2$.

x	–2	–1	0	1	2	
$3x$		–3		3	6	
+2			+2		+2	
y		–1				11

(ii) Draw the graph of $y = 3x + 2$ on the grid below.



(iii) Find the **gradient** of the graph.

Ans: _____

_____(6 marks)

13. The maximum temperature of each day in February was recorded in a frequ

(a) Fill in the frequency column in the table below:

Temperature (C^o)	Tally	Frequency
10 ≤ Temp. < 12	||	
12 ≤ Temp. < 14	𝍸 |||	
14 ≤ Temp. < 16	𝍸 𝍸	
16 ≤ Temp. < 18	𝍸 |	
18 ≤ Temp. < 20	||	
20 ≤ Temp. < 22	|	
		Total 29

(b) On how many days was the temperature:

(i) at least 12°C but less than 14°C? Ans: _____

(ii) less than 16°C? Ans: _____

(iii) at least 18°C? Ans: _____

(c) Hilda looks at the table and says:

'Two days in February had a temperature of 19°C.'

Hilda's statement is: **True** **Maybe True** **False**

Ans: _____

_____(6 marks)

End of Paper