

KULLEĠĠ SAN BENEDITTU
Boys Secondary School, Kirkop



HALF-YEARLY EXAMINATIONS – FEBRUARY 2013

FORM 3

MATHEMATICS Scheme A

TIME: 30mins

Non Calculator Paper

Question	1	2	3	4	5	6	7	8	Total
Max. mark	5	2	4	3	2	2	3	4	25
Mark									

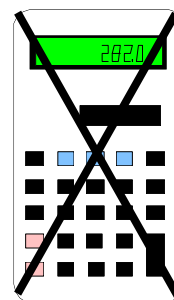
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NAME AND SURNAME: _____ **CLASS:** _____

INSTRUCTIONS TO CANDIDATES:

Read all the questions carefully before you start answering.

- Answer all questions.
- This paper carries 25 marks.
- **Calculators, protractors** and other mathematical instruments are **NOT ALLOWED**.
- On your desk you should have nothing except for **pen, pencil, ruler** and the **examination paper**.



1. (a) Find the **simple interest** when €600 is invested for 4 years at 2% per annum.

Ans: _____

- (b) Jacob invests a sum of money and receives €80 after 2 years.
What is the **sum** invested if the rate of interest is 4% per annum?

Ans: _____

(5 marks)

2. **Simplify:** $\frac{y^2}{4} \times \frac{2x^3}{x^2y^2}$

Ans: _____

(2 marks)

3. **Work out** the following. Give your answers as mixed numbers, where necessary.

(a) $\frac{1}{2} + \frac{3}{5}$

(b) $2\frac{1}{2} \div 3\frac{3}{4}$

Ans: (a) _____

(b) _____

(4 marks)

4. From this list of numbers 5, 4, 8, 11, 4, 3, 3, 6, 2, 3,
find:

(a) The **median**

Ans: _____

(b) The **mode**

Ans: _____

(c) The **range**

Ans: _____

(3 marks)

5. **Expand and simplify:** $(x - 2)(x - 3)$

Ans: _____

(2 marks)

6. Make v **the subject of the formula.**

$$u = 7v - 12$$

Ans: _____

(2 marks)

7. Write down the next **two terms** of the following sequences:

(a) 5, 9, 13, _____ , _____

(b) 11, 6 , 1, _____ , _____

(c) 1 , 4 , 9, _____ , _____

(3 marks)

8. The ratio of female to male members of Banner Cross Church is 12 : 3. The total number of members of the church is 300.

(a) How many members are **females**?



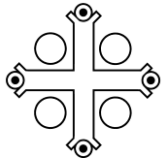
Ans: _____

(b) What **percentage** of members is male?

Ans: _____

(4 marks)

END OF PAPER



KULLEĠĠ SAN BENEDITTU
Boys Secondary School, Kirkop

A

HALF-YEARLY EXAMINATIONS – FEBRUARY 2013

FORM 3

MATHEMATICS Scheme A

TIME: 1hr 30mins

Main Paper

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Main	NC	Global Mark
Max. Mark	4	7	6	3	6	3	5	3	8	6	5	9	5	5	75	25	100
Mark																	

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NAME AND SURNAME: _____ **CLASS:** _____

INSTRUCTIONS TO CANDIDATES:

Read all the questions carefully before you start answering.

- Answer all questions.
- This paper carries 75 marks.
- Calculators and mathematical instruments are allowed but all necessary working must be shown.

1. Write the following numbers in **standard form**.

(a) $0.0235 =$ _____

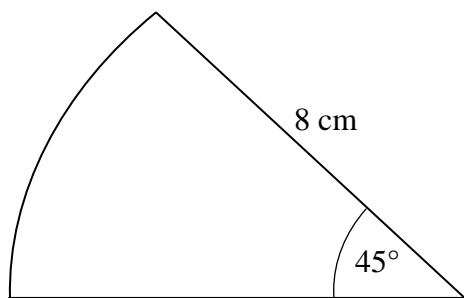
(b) $423.57 =$ _____

(c) $73.334 =$ _____

(d) $0.0000007 =$ _____

(4 marks)

2.



- (a) Calculate the **area** of this sector.
Give your answer correct to 2 decimal places.

Ans: _____ cm²

- (b) Calculate the **total perimeter** of this sector. Give your answer correct to 3 significant figures.

Ans: _____ cm

(7 marks)

3. **Solve** these equations:

(a) $4(y + 2) - (y - 1) = 12$

Ans: $y =$ _____

(b) $\frac{7x}{2} - \frac{x}{4} = 13$

Ans: $x =$ _____

(6 marks)

4. **Factorise** completely.

(a) $4x + 12y$ _____

(b) $5ab + 10b^2c$ _____

(3 marks)

5. (a) The price of a boat was reduced from €35000 to €30000.

What is the **percentage reduction**?

Give your answer correct to 1 decimal place.



Ans: _____

- (b) Sue sells her house for €114000, making a profit of 20% on its original price. Work out its **original** price.

Ans: _____

(6 marks)

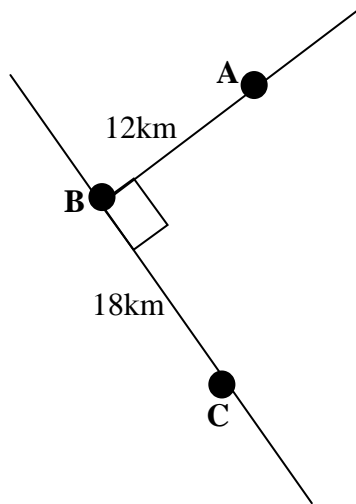
6. Eight workers can do a piece of work in 48 minutes.
How **long** would 3 workers take to do the same job?



Ans: _____

(3 marks)

7. At the moment, 3 towns, A, B and C are joined by two roads, as in the diagram. The council wants to make a road which runs directly from A to C.



- (a) Work out the new distance of the road AC. Give your answer correct to 1 decimal place.

Ans: _____

- (b) How much distance will the new road **save**? Give your answer correct to the nearest km.

Ans: _____

(5 marks)

8. Here are 6 formulae. Match **3 pairs** of **equivalent** formulae.

$$y = 4x + 5$$

$$y = 5x - 4$$

$$x = \frac{y+5}{4}$$

$$4x - 5 = y$$

$$x = \frac{y-5}{4}$$

$$x = \frac{y+4}{5}$$

(3 marks)

9. (a) Work out the **sum** of the interior angles of a **hexagon**.

Ans: _____

- (b) How many **sides** does a regular polygon have if each exterior angle is 30° ?

Ans: _____

- (c) Work out the **value** of the missing angles.

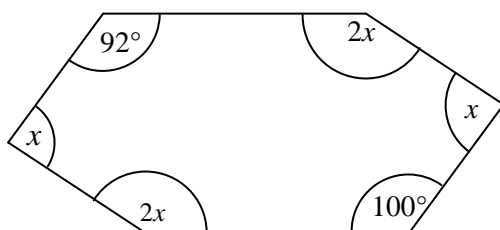


Diagram not to scale

Ans $x =$ _____ $2x =$ _____

(8 marks)

10. A map has a scale of 2 cm to 5 km

- (a) Rewrite the scale as a ratio in its **simplest form**

Ans: _____

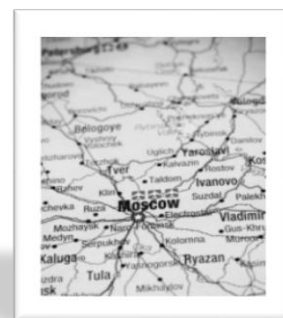
- (b) **How long** is a **path** that measures 0.8 cm on the map?

Ans: _____

- (c) **How long** should a 12 km road be on the **map**?

Ans: _____

(6 marks)



11. A sequence starts 4, 7, 10, 13

(a) Write the **next 3 terms** of this sequence

Ans: _____, _____, _____

(b) Give the ***n*th term** of the sequence.

Ans: _____

(c) Which term in this sequence represents 160?

Ans: _____

(5 marks)

12. (a) **Complete** the table of values for the graph with equation $y = 3x - 2$.

x	-3	-2	-1	0	1	2	3
$3x$	-9				3		
-2	-2	-2				-2	
$y = 3x - 2$	-11		-5			4	

(b) **Plot** the graph of $y = 3x - 2$. Use a scale of 2cm to represent 1 unit on the x -axis and 1cm to represent 1 unit on the y -axis.

(c) Use your graph to find the **value** of:

(i) x when $y = 5$ _____

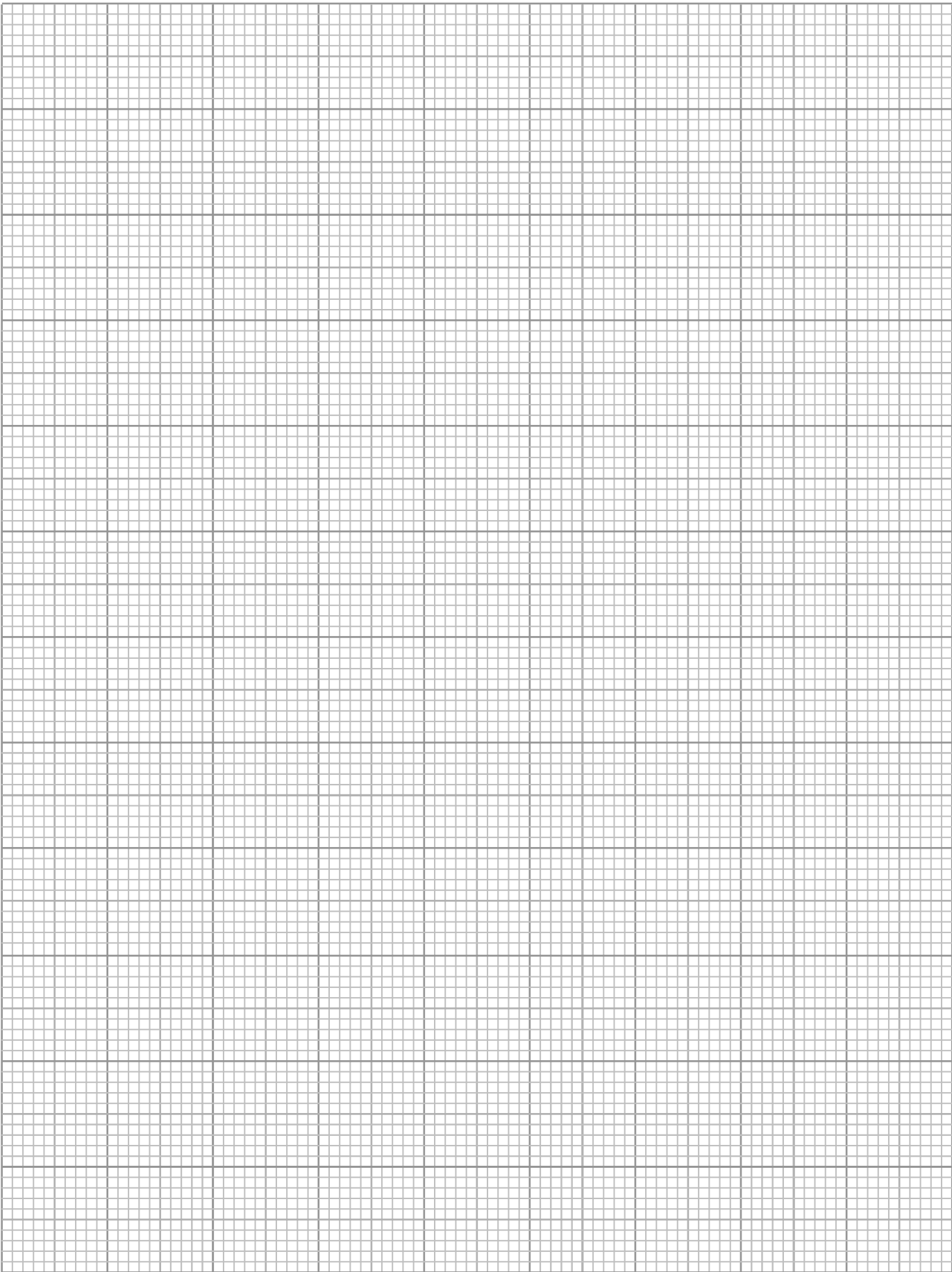
(ii) y when $x = 1.5$ _____

(d) Write down the **value** of:

(i) the gradient _____

(ii) the y -intercept. _____

(9 marks)





13. A survey of the number of children in each family of a town gave these results.

Number of children	0	1	2	3	4	5
Frequency	12	214	316	97	26	3

- (a) Assuming that each family participated in the survey, **how many families** are there in this town?

Ans: _____

- (b) Calculate the **mean** number of children in a family. Give your answer correct to the nearest whole number.

Ans: _____

- (c) Write down the **modal** number of children in a family.

Ans: _____

(5marks)

14. (a) If $A = \frac{4t+2h}{t-3h}$, find the **value** of A when $t = 4$ and $h = -3$.

- (b) If $Z = \frac{y^2+3}{4+y}$, find the **value** of Z when $y = -6$.