

**KULLEĠĠ SAN BENEDITTU**  
**Boys Secondary School, Kirkop**



**HALF-YEARLY EXAMINATIONS – FEBRUARY 2012**

FORM 2

**MATHEMATICS** Scheme B

TIME: 30 mins

**Non Calculator Paper**

<b>Question</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>Total</b>
<b>Max. Mark</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>4</b>	<b>4</b>	<b>25</b>
<b>Mark</b>									

**DO NOT WRITE ABOVE THIS LINE**

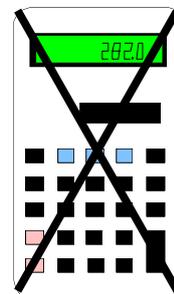
**NAME AND SURNAME:** \_\_\_\_\_

**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** and the **examination paper**.
- You are not required to show your working. However, space for working is provided if you need it.



1. a) Write all the **prime** numbers between 20 and 30. \_\_\_\_\_
- b) Write two **factors** of 24. \_\_\_\_\_
- c) Write two **multiples** of 6. \_\_\_\_\_

(3 marks)

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2. Write in **ascending** order.

$$\frac{1}{2}, \frac{1}{24}, \frac{1}{8}, \frac{1}{4}, \frac{1}{6}$$

\_\_\_\_\_

(2 marks)

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3. A bag contains 2 **yellow** marbles, 3 **red** marbles and 5 **green** marbles.

Alan picks a marble at random from the bag.

What is the probability that the marble is:

- a) green: **P (green)** = \_\_\_\_\_
- b) yellow or green: **P (yellow or green)** = \_\_\_\_\_
- c) blue: **P (blue)** = \_\_\_\_\_
- d) not yellow: **P (not yellow)** = \_\_\_\_\_

(4 marks)

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4. **Work out:**

$$0.2 \times (-6) = \underline{\hspace{2cm}}$$

$$(-70) + 25 = \underline{\hspace{2cm}}$$

$$(-27) \div (-9) = \underline{\hspace{2cm}}$$

$$(-34) - 20 = \underline{\hspace{2cm}}$$

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(4 marks)

5. Express 50c as a **percentage** of €2.50.

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(2 marks)

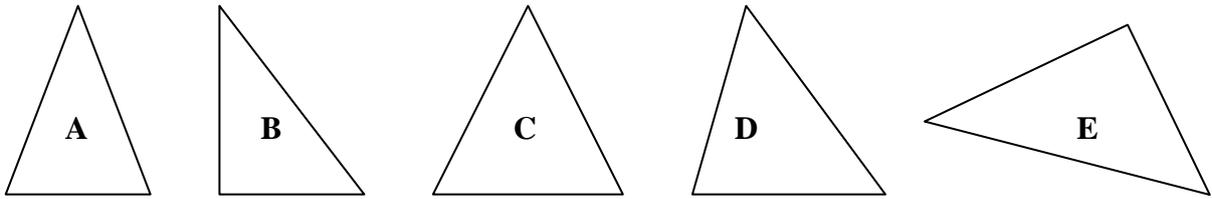
6. By rounding to the **nearest whole number**, write an **estimate** of:

$$\frac{24.2 \times 8.9}{3.11} \approx \underline{\hspace{2cm}}$$

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(2 marks)

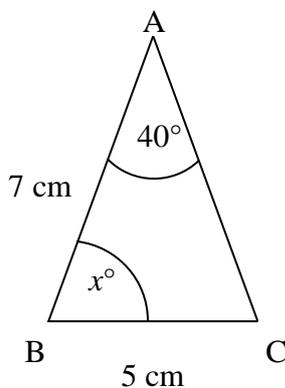
7. Look at the **triangles** below.



- a) Which **two triangles** are **right-angled**? \_\_\_\_\_
- b) Which **two triangles** are **isosceles**? \_\_\_\_\_
- c) How many **triangles** are **scalene**? \_\_\_\_\_
- d) Which **triangle** has **rotational symmetry** of **order 3**? \_\_\_\_\_

(4 marks)

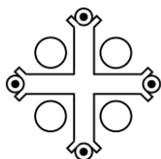
8. Triangle **ABC** is an **isosceles** triangle, where **AB = AC**.  
**Angle A** is **40°**, side **AB** is **7 cm** long and side **BC** is **5 cm** long.



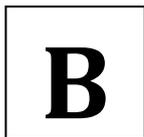
a) Find the missing **angle  $x^\circ$** .

b) Find the **perimeter** of **triangle ABC**.

(4 marks)



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**HALF-YEARLY EXAMINATIONS – FEBRUARY 2012**

**FORM 2**

**MATHEMATICS**

**TIME: 1hr 30mins**

**Main Paper**

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	Main	NC	Global Mark
Max. Mark	4	3	4	8	8	9	5	5	4	6	4	4	11	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. Liam has a bar of chocolate. He eats  $\frac{1}{4}$ , gives  $\frac{1}{5}$  to a friend and  $\frac{1}{6}$  to his sister.

What fraction of the chocolate bar is **left**?



\_\_\_\_\_ (4 marks)

2. a) Write all the **prime numbers** between 1 and 10.

\_\_\_\_\_

b) 50 can be written as a product of prime factors as follows:

$$50 = 2 \times 5^2$$

Write 240 as a product of its **prime factors**.

\_\_\_\_\_

(3 marks)

3. a) Write the fractions in order, starting with the **smallest**.

$$\frac{1}{2} \quad , \quad \frac{2}{3} \quad , \quad \frac{7}{12} \quad , \quad \frac{3}{4} \quad , \quad \frac{11}{24}$$

\_\_\_\_\_

b) From the following fractions, find **2 pairs** of equivalent fractions.

$$\frac{7}{12} \quad \frac{4}{12} \quad \frac{3}{9} \quad \frac{8}{14} \quad \frac{3}{4} \quad \frac{4}{7}$$

$$\boxed{\phantom{00}} = \boxed{\phantom{00}} \quad , \quad \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

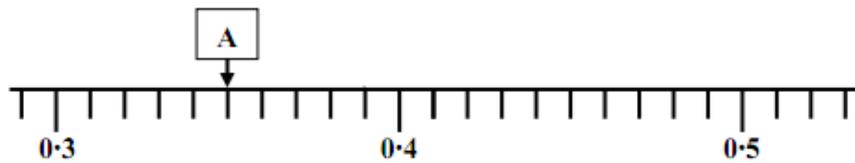
(4 marks)

4. a) **Three** of these numbers are between **2.3** and **3.2**. Which are they?

2.31      3.23      2.36      3.22      2.03      3.02

b)

i) What decimal number is shown by the arrow on the number line?



A = \_\_\_\_\_

ii) **B** = **0.43**. Show this number on the above number line.

c) i) Make a **rough** check of the following calculation:

$$\frac{73.5 - 48.3}{19.45 \times 0.198} \approx$$

ii) Now work it out using your calculator and give the answer correct to **3 decimal places**.

\_\_\_\_\_

(8 marks)



7. The list shows the temperature at noon in six cities on the same day.

London	New York	Moscow	Paris	Nice	Geneva
5°C	3°C	-3°C	0°C	12°C	-2°C



a) Write these temperatures in order, **coldest** first.

\_\_\_\_\_

b) Newcastle is 3°C **colder than London**. Write the temperature in Newcastle.

\_\_\_\_\_ °C

c) What is the **difference** between the temperature in Nice and Moscow?

\_\_\_\_\_ °C

(5 marks)

8. a) Dwight throws a normal six-sided die. What is the probability that he gets:

i) an **even** number? \_\_\_\_\_

ii) a **prime** number? \_\_\_\_\_



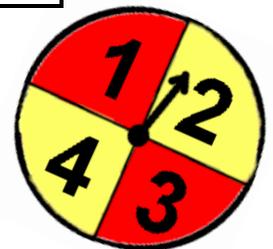
b) Owen makes a spinner marked 1 to 4. He spins the spinner several times. Here are his results.

<b>Score</b>	1	2	3	4
<b>Frequency</b>	31	18	16	17

i) Which is the most likely score? \_\_\_\_\_

ii) How many times does he spin the spinner?

\_\_\_\_\_ times



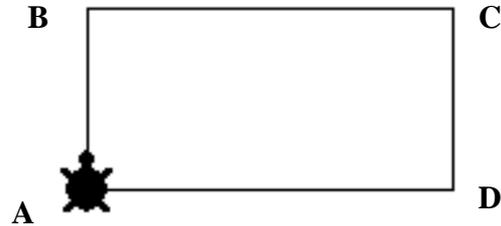
iii) Estimate the probability of scoring a 2. Express the fraction in **its lowest terms**.

\_\_\_\_\_

(5 marks)

9. ABCD is a rectangle in which **AD is twice AB** in length.

AB is 30 turtle steps long. Complete the following command so that the turtle draws the rectangle ABCD.



PD  
REPEAT \_\_\_ [FD \_\_\_ RT 90 FD \_\_\_ RT \_\_\_]

(4 marks)

10. a) Mark earns €160 per week. He spends **25%** on food, **38%** on rent and **15%** on bills. He saves the rest.

i) What percentage does he save?

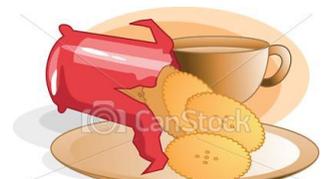


\_\_\_\_\_ %

ii) He spends 15% of €160 on bills. How much is this?

€ \_\_\_\_\_

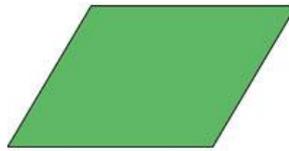
b) A packet of biscuits weighs 400 grams. Special packets offer an **extra 30% free**. Work out the weight of a special packet.



\_\_\_\_\_ g

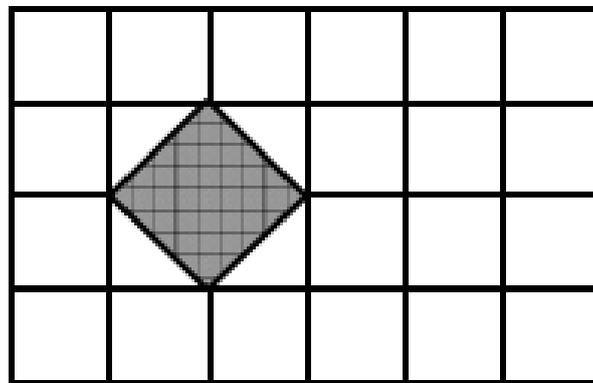
(6 marks)

11. a) **Circle** the correct answer: **TRUE** or **FALSE**. (The first one is done for you).



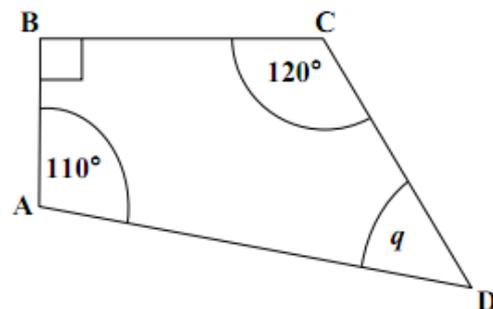
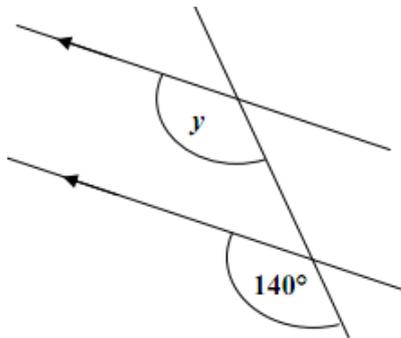
- i) This shape is a rhombus. **TRUE** / FALSE
- ii) It has 4 equal sides. TRUE / FALSE
- iii) It has only one pair of equal angles. TRUE / FALSE

b) Add at least 6 more similar shapes to show that the shape tessellates.



(4 marks)

12. Calculate the size of angles  $y$  and  $q$ , giving reasons for your answers.



$y =$

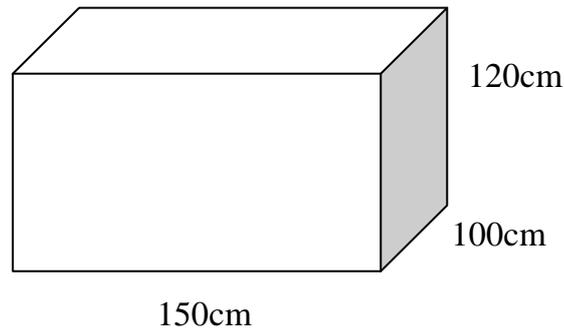
Reason: \_\_\_\_\_

$q =$

Reason: \_\_\_\_\_

(4 marks)

13. a) Andy's water tank is shown in the diagram. It is full of water.



i) Work out the **volume** of water in the tank, in  $\text{cm}^3$ .

\_\_\_\_\_  $\text{cm}^3$

ii) Given that  $1000\text{cm}^3 = 1$  litre, write down the volume in litres when it is **half full**.

\_\_\_\_\_ litres

The tank is made of metal. **It has no top.**

iii) Work out the **area of metal used** to make the tank. Give your answer in  $\text{cm}^2$ .

\_\_\_\_\_  $\text{cm}^2$

b) A subway is 12 m long and 2.5m high. Jake is painting **both** walls. A tin of paint covers  $12.5 \text{ m}^2$ .

How many tins does Jake need?



\_\_\_\_\_ tins

**B**

(11 marks)

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