

KULLEĠĠ SAN BENEDITTU
Boys Secondary School, Kirkop

B

HALF-YEARLY EXAMINATIONS – FEBRUARY 2012

FORM 2

MATHEMATICS Scheme B

TIME: 30 mins

Non Calculator Paper

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

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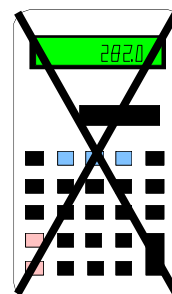
NAME AND SURNAME: _____

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** 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)

2. Write in **ascending** order.

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

(2 marks)

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)

4. **Work out:**

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

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

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

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

(4 marks)

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

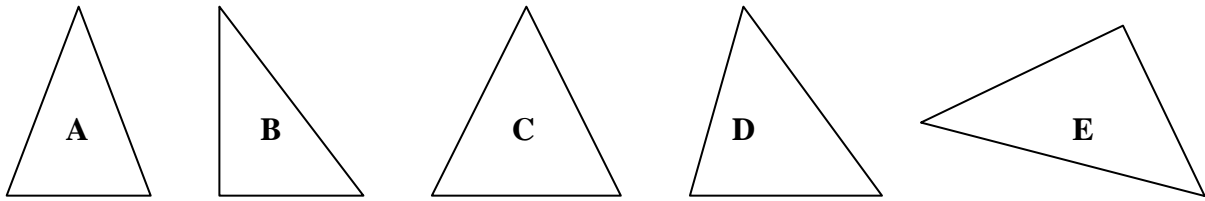
(2 marks)

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

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

(2 marks)

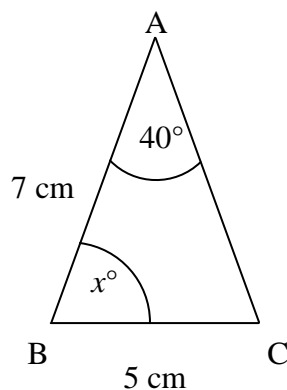
7. Look at the **triangles** below.



- Which **two triangles** are **right-angled**? _____
- Which **two triangles** are **isosceles**? _____
- How many **triangles** are **scalene**? _____
- Which **triangle** has **rotational symmetry** of **order 3**? _____

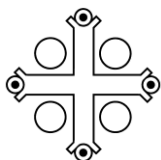
(4 marks)

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.



- Find the missing **angle x°** .
- Find the **perimeter** of **triangle ABC**.

(4 marks)



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B

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																

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 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**.

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

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

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

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

(4 marks)

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

2.31

3.23

2.36

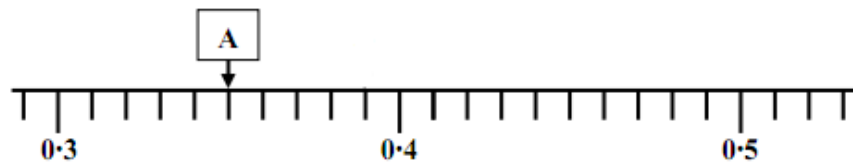
3.22

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.

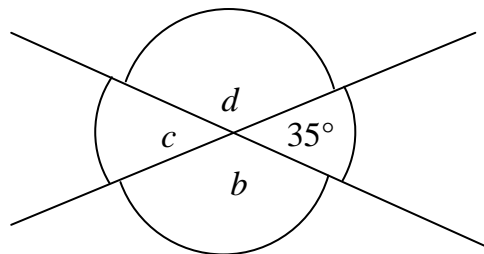
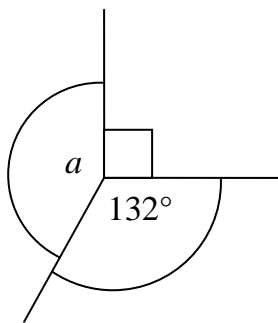
c) i) Make a **rough** check of the following calculation:

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

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

(8 marks)

5. Find the marked angles giving reasons for your answers.



$a = \underline{\hspace{1cm}}^\circ$. Reason:

$b =$ _____ $^{\circ}$. Reason: _____

$c = \underline{\hspace{2cm}}^\circ$. Reason:

$d =$ _____^o. Reason: _____

(8 marks)

6. a) Simplify:

i) $3b + 6 + 2b + 5 =$

ii) $3d - 4e + 5e - f + 2f - 2d =$

b) Expand and Simplify:

i) $3(5a + 4b) =$

ii) $12(10x - 2y + 4) =$

iii) $3(a - 2b) + 5(2a + 3b) =$

(9 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.

Score	1	2	3	4
Frequency	31	18	16	17

i) Which is the most likely score? _____

ii) How many times does he spin the spinner?

_____ times

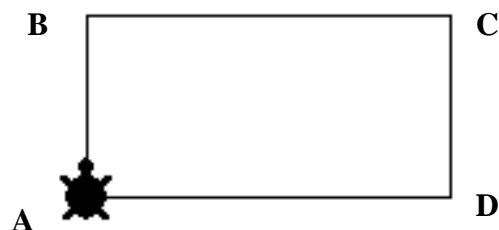


iii) Estimate the probability of scoring a 2. Express the fraction in **its lowest terms**.

(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?

€ _____

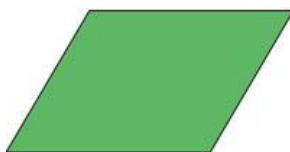
- b) A packet of biscuits weighs 400 grams. Special packets offer an **extra 30% free**. Work out the weight of a special packet.



_____ 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

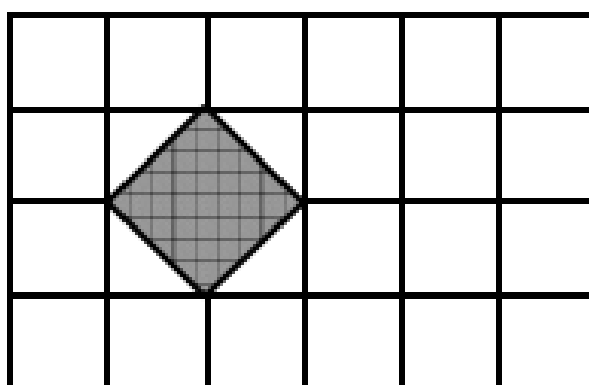
ii) It has 4 equal sides.

TRUE / FALSE

iii) It has only one pair of equal angles.

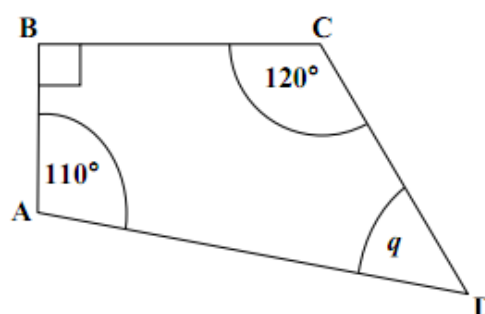
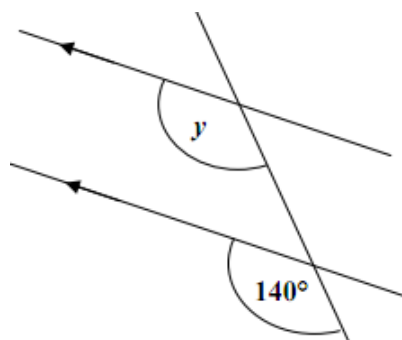
TRUE / FALSE

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.



$y =$

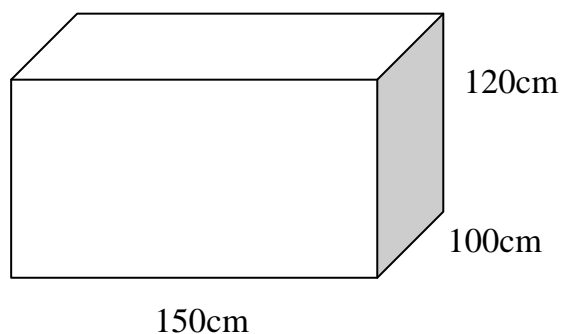
Reason: _____

$q =$

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 cm^3 .

_____ cm^3

ii) Given that $1000\text{cm}^3 = 1 \text{ litre}$, 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 cm^2 .

_____ 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 m^2 .

How many tins does Jake need?



_____ tins

