

# KULLEĠĠ SAN BENEDITTU

## Secondary School, Kirkop

Mark

### HALF YEARLY EXAMINATION – 2015/2016

Track 2

FORM 3

MATHEMATICS Track 2

TIME: 30 mins

#### Non Calculator Paper

Question	1	2	3	4	5	6	7	8	9	Total
Max. Mark	3	1	3	3	1	5	2	4	3	25
Mark										

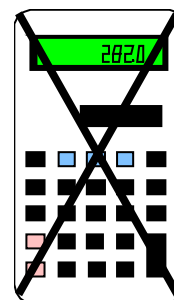
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NAME AND SURNAME: \_\_\_\_\_ CLASS: \_\_\_\_\_

#### 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. Change the units of these measurements:

a)  $37.9 \text{ m} = \underline{\hspace{2cm}} \text{ cm}$

b)  $42.71 \text{ l} = \underline{\hspace{2cm}} \text{ ml}$

c)  $80 \text{ g} = \underline{\hspace{2cm}} \text{ kg}$

(3 marks)

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2. Give an **approximation** for:  $\frac{29.5 + 19.8}{5.12}$

Answer:                     

(1 mark)

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3. Work out the following:

a)  $96 + (-17) = \underline{\hspace{2cm}}$

b)  $47 - (-9) = \underline{\hspace{2cm}}$

c)  $-23 \times -3 = \underline{\hspace{2cm}}$

(3 marks)

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4. Expand and simplify:  $4(4a + 3b) - 3(2a - b)$

Answer:                     

(3 marks)

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5. Factorise:  $25a - 5c$

Answer:                     

(1 mark)

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6. a) i) Change  $2\frac{2}{3}$  to an **improper fraction**:

Answer: \_\_\_\_\_

- ii) Change  $\frac{10}{4}$  to a **mixed fraction**:

Answer: \_\_\_\_\_

- b) Work out and simplify where possible:

i)  $\frac{4}{5} - \frac{2}{3}$

ii)  $\frac{5}{9} \times \frac{3}{15}$

Answer: \_\_\_\_\_

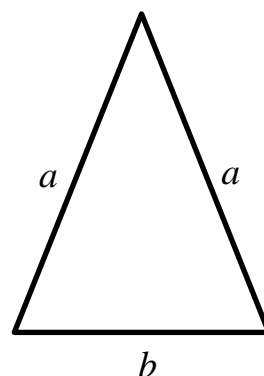
Answer: \_\_\_\_\_

(5 marks)

7. The perimeter **P** of this triangle can be written as:

$$P = 2a + b$$

Make *a* the subject of the formula.



$a =$  \_\_\_\_\_

(2 marks)

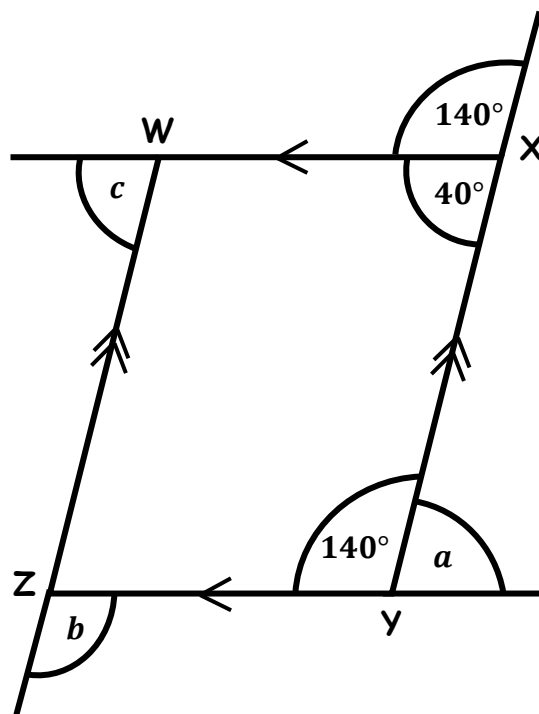
8. WXYZ is a parallelogram.

a) Write down the size of these angles

$\hat{a} =$  \_\_\_\_\_ °

$\hat{b} =$  \_\_\_\_\_ °

$\hat{c} =$  \_\_\_\_\_ °



b) Adding the **exterior angles** of this parallelogram gives

$$140^\circ + \boxed{\phantom{00}} + \boxed{\phantom{00}} + \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

(4 marks)

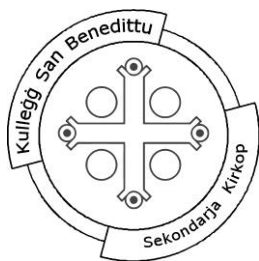
9. James watches TV from 3.20 p.m. till 5.15 p.m. He then reads a book and afterwards he watches a football match on TV which starts at 8.45 p.m. and ends at 10.30 p.m.

How many **hours and minutes** does James spend watching TV?

Answer: \_\_\_\_\_ hours \_\_\_\_\_ minutes

(3 marks)

**END OF NON CALCULATOR PAPER**



# KULLEGG SAN BENEDITTU

## Secondary School, Kirkop

Mark

HALF YEARLY EXAMINATION – 2015/2016

TRACK 2

FORM 3

**MATHEMATICS** TRACK 2

TIME: 1 hr 30 mins

### Main Paper

Question	1	2	3	4	5	6	7	8	9	10	11	Main	NC	Global Mark
Max. Mark	4	4	7	8	8	7	3	8	7	10	9	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. a) Round:

i) 17.452 correct to 1 decimal place;

Ans: \_\_\_\_\_

ii) 36.198 correct to 2 decimal places.

Ans: \_\_\_\_\_

b)  $x$  is any number between 0 and 10. Kane says, “ $x^2$  is greater than  $x$ ”.

Kane's statement is

A) Always true

B) Never true

C) Sometimes true

Explain: \_\_\_\_\_

\_\_\_\_\_

(4 marks)

2. The distance from the earth to the moon is 374 000 km.



a) i) Write this distance in metres.

Ans: \_\_\_\_\_ m

ii) Write 374 000 km in standard form.

Ans: \_\_\_\_\_ km

b) On a calculator,

Ryan types:

**3**

**EXP**

**6**

and Alexia types

**9**

**EXP**

**5**

Who typed the larger number? Explain.

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(4 marks)

3. a) Write these numbers in order, starting from the smallest:  $0.5$  ,  $\frac{8}{25}$  ,  $\frac{2}{5}$  .

Ans: \_\_\_\_\_

b) Work out, giving your answer as a fraction:

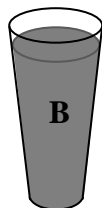
$$\frac{1}{5} + \frac{2}{3}$$

Ans: \_\_\_\_\_

c)



$\frac{1}{5}$  litre



$\frac{2}{3}$  litre



$\frac{3}{5}$  litre



i) Glasses A, B and C are filled with water. Lucy tries to pour all the water from the glasses into the empty bottle. How much water **does not fit** into the bottle?

Ans: \_\_\_\_\_ litre

ii) Lucy now tries to pour **only two** of the glasses into the bottle. Still, not all the water fits into the bottle. These two glasses are \_\_\_\_\_ and \_\_\_\_\_.

(7 marks)

4. The table shows the hours of rain on weekdays in the first two weeks of December.

Weekday	Week 1	Week 2
Monday	6.3	3.7
Tuesday	5.4	5.8
Wednesday	2.0	4.1
Thursday	4.6	3.9
Friday	5.4	?

- a) Work out the **mean** for Week 1.

Ans: \_\_\_\_\_

- b) The **mode** for Week 1 is \_\_\_\_\_.

- c) The total number of hours of rain for Week 2 was 20 hours. How long did it rain on Friday of Week 2?



Ans: \_\_\_\_\_

- d) Calculate the **median** for Week 2.

Ans: \_\_\_\_\_

- e) Calculate the **range** for Week 2.

Ans: \_\_\_\_\_

(8 marks)

5. A milkshake recipe requires 300 ml of milk, 240 ml of ice cream and 60 ml of chocolate.

- a) Write down and simplify the ratio of milk : ice cream : chocolate.

Ans: \_\_\_\_\_

- b) How many millilitres of ice cream is needed with 960 ml of milk?



Ans: \_\_\_\_\_ ml

- c) How many millilitres of each ingredient is needed to make **5.4 litres** of milkshake?

Ans: milk \_\_\_\_\_ ml; ice cream \_\_\_\_\_ ml; chocolate \_\_\_\_\_ ml.

(8 marks)

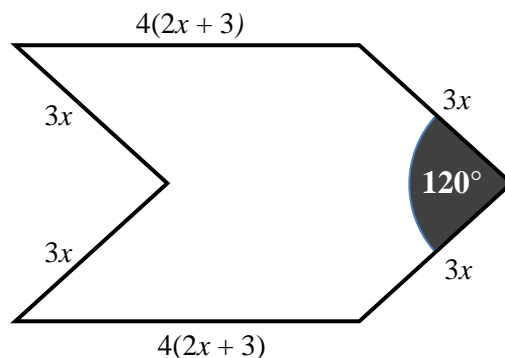
6. This polygon is called a chevron.

- a) Is the polygon **regular** or **irregular**?

Ans: \_\_\_\_\_

- b) The value of the shaded angle can be expressed as  $y + 34$ .

Work out the value of  $y$ .



$y =$  \_\_\_\_\_

- c) i) Expand:  $4(2x + 3)$ .

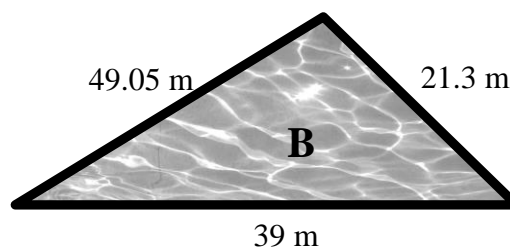
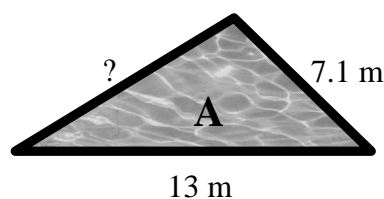
Ans: \_\_\_\_\_

- ii) The perimeter of the chevron above is 584 cm. Form an equation for  $x$  and solve it.

$x =$  \_\_\_\_\_

(7 marks)

7. Triangular pools A and B are **similar**. The length of their base is 13 m and 39 m respectively.



*Diagrams not to scale*

- a) Write down and simplify the ratio **base of A : base of B**.

Ans: \_\_\_\_\_ : \_\_\_\_\_

- b) Work out the missing length of pool A.

Ans: \_\_\_\_\_ m

- c) It costs €240.60 to build a pathway around pool A.  
How much does it cost to build a pathway around pool B?

Ans: € \_\_\_\_\_

(3 marks)



8. Laura and Greg live in the same house. They ride their bikes to school which is 16 800 m away. Laura takes 40 minutes to arrive to school. Greg travels at a speed of 12.4 m/s.

a) i) Change 40 minutes to seconds.

Ans: \_\_\_\_\_ seconds

ii) Work out Laura's average **speed** in metres/second.

Ans: \_\_\_\_\_ m/s

b) i) How long does Greg's journey take? Give your answer to the nearest second.

Ans: \_\_\_\_\_ seconds

ii) Change your last answer to minutes, correct to the nearest minute.

Ans: \_\_\_\_\_ minutes

c) Who arrives first at school **and** by how many minutes?

Ans: \_\_\_\_\_ arrives first by \_\_\_\_\_ minutes

(8 marks)

9. There are **18 000** different types of fish in the world.

a) **47.5%** of the different types of fish are found in the Mediterranean. How much is this?

Ans: \_\_\_\_\_ fish

b) People catch only 5580 different types of fish.

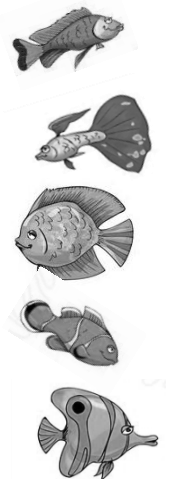
Express this number as a **percentage** of the different types of fish in the world.

Ans: \_\_\_\_\_ %

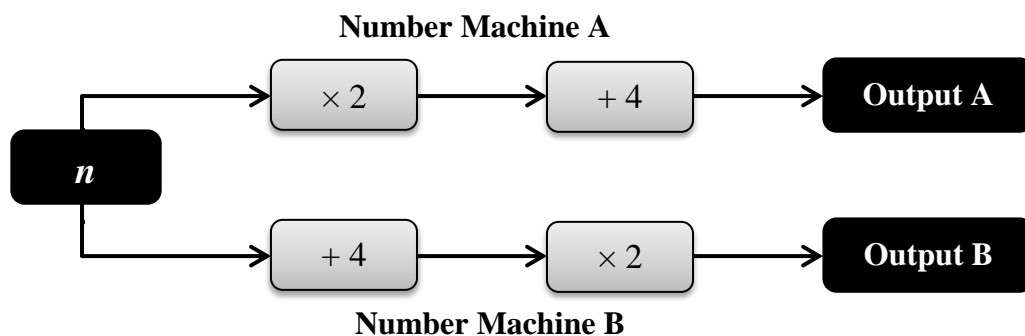
c) It is estimated that the 18 000 different types of fish will **decrease** by 1% by the year 2026. How many different types of fish will there be in 2026?

Ans: \_\_\_\_\_ different types of fish

(7 marks)



10. Number machines A and B produce different outputs to the same input  $n$ .



a) Write down the **first term** ( $n = 1$ ) for Number Machine A.

Ans: \_\_\_\_\_

b) Write down the **first three terms** for Number Machine B.

Ans: \_\_\_\_\_

c) Complete:

$n$	Output A
9	
	38
62	

$n$	Output B
9	
	42
62	

d) For the same input  $n$ , what is the **difference** between outputs A and B?

Ans: \_\_\_\_\_

e) What is the value of Output A when Output B is 158?

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

f) Which of the following represents Number Machine A?

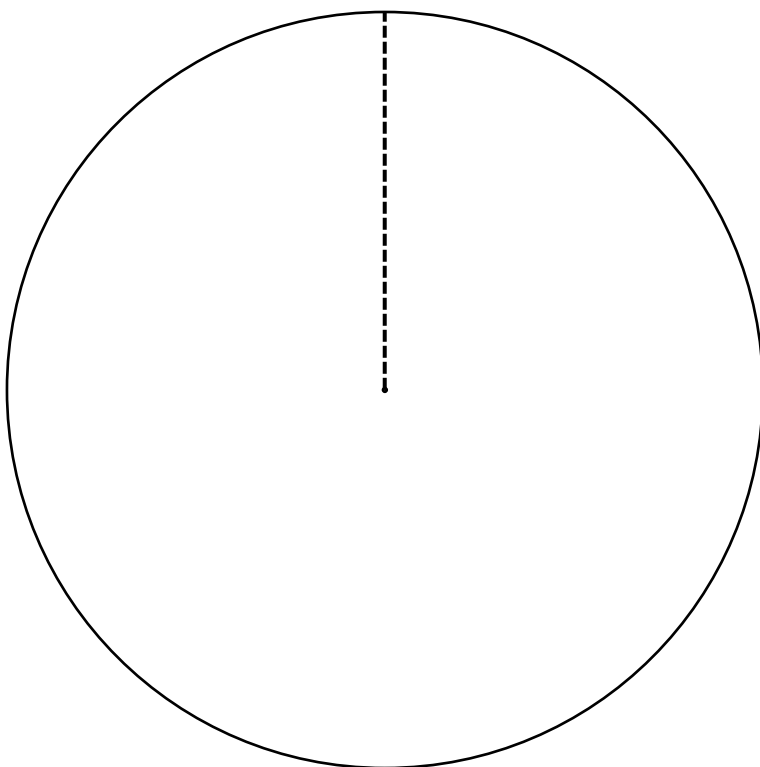
A)  $(n + 2) \times 4$

B)  $n \times (2 + 4)$

C)  $(n \times 2) + 4$

(10 marks)

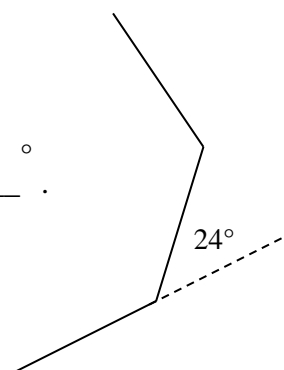
11. a) Draw a regular **nonagon** (9 sides) in the circle below.



b) A regular polygon X has its **exterior** angles equal to  $24^\circ$ .

i) The sum of the **exterior** angles of **any** polygon is \_\_\_\_\_  $^\circ$ .

ii) How many **sides** does polygon X have?



*Diagram not to scale*

Ans: \_\_\_\_\_ sides

iii) What is the size of each **interior** angle of polygon X?

Ans: \_\_\_\_\_  $^\circ$

iv) What is the sum of the **interior** angles of polygon X?

Ans: \_\_\_\_\_  $^\circ$

(9 marks)

**END OF EXAM**