

MARKER CODE			



STUDENT ENROLMENT NUMBER (SEN)									

FORM TWO COMMON EXAMINATION 2020 MATHEMATICS

QUESTION AND ANSWER BOOKLET

Time Allowed: 2 Hours + 10 minutes reading

INSTRUCTIONS:

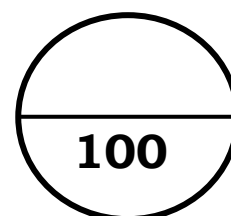
1. This paper has **FIVE SECTIONS**. ALL Sections are COMPULSORY.

SECTION	TOPIC	MARKS
I	NUMBERS	30
II	GEOMETRY	15
III	MEASUREMENTS	20
IV	ALGEBRA	20
V	STATISTICS/PROBABILITY	15
TOTAL MARKS		100

2. Write your **Student Enrolment Number (SEN)** on the top right hand corner of this page and on page **27**.
3. Answer **ALL** questions in the spaces provided.
4. You are not allowed to use a calculator.
5. Use a black or blue ball point pen for your written answer. Use a pencil **ONLY** for drawings.
6. Write legibly and work neatly. **SHOW ALL YOUR WORKING.**
7. Check that this booklet contains pages **2-27** in the correct order and that page 26 have been deliberately left blank.
8. If you need more spaces for answers, ask the supervisor for extra paper. Write your **Student Enrolment Number (SEN)** on the extra papers used.

YOU MUST HAND IN THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

TOTAL MARKS



SECTION I:**NUMBERS****(30 MARKS)****QUESTION ONE: MULTIPLE CHOICE QUESTIONS****(5 Marks)**Circle the letter of the **BEST** answer.

If the best answer is **A** then circle **A**. If you want to change your answer from A to C, then put a cross through A and then circle C.

For example:



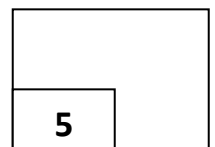
B



D

- What is the **value** of 3 in **657.432**?
 - 0.3
 - 0.03
 - 0.003
 - 30
- Writing **45%** in **decimal fraction** is equal to _____.
 - 45
 - 4.5
 - 0.45
 - 0.045
- How many **20 cents** is in **\$20.00**?
 - 20
 - 40
 - 60
 - 100
- The answer to $5^{10} \div 5^3$ in **index form** is _____.
 - 5^7
 - 5^6
 - 5^5
 - 5^4
- What is the **sum** of the first three **triangular numbers**?
 - 6
 - 10
 - 15
 - 21

P.2



QUESTION TWO:**SHORT ANSWER QUESTIONS****(17 Marks)****ANSWER ALL THE QUESTIONS IN THIS SECTION.**

Write the answer to each question in the spaces provided.

1. Write $2 \times 10^3 + 5 \times 10^1$ in **compact form**. (1 mark)

--

2. **Arrange** these integers from smallest to biggest. (2 marks)

-4, 3, -6, 2, -1

--

3. **Calculate** the following.

a) $-3 + 8 - 10$ (1 mark)

--

b) $\sqrt{400} + 90$ (1 mark)

--

P.3

c) 65.24×10^3 (1 mark)

--

d) $\frac{3}{12} \div \frac{2}{4}$ (2 marks)

--

4. Find the **Lowest Common Multiples (LCM)** of 9 and 12. (1 mark)

--

5. Express **140** in **Prime Factors** using **Index Notation**. (2 marks)

--

6. Use the **Gauss Method** to find the **sum** for this Series of Numbers.

$$1 + 2 + 3 + 4 + 5 + \dots + 96 + 97 + 98 + 99 + 100 \quad (2 \text{ marks})$$

7. Calculate the following using the **Mental Method**.

$$8341 - 638 \quad (2 \text{ marks})$$

8. This is a copy of Lavenda's Bank Statement at the Mbf Bank. Find the value of **A** (Lavenda's account balance on 14th August). (2 marks)

Dates	Deposit	Withdraw	Balance
14 th August	No deposit	No withdrawal	A=_____
21 st August	No deposit	\$350.00	\$450.00
28 th August	\$200	No withdrawal	\$650

(show your working here)

QUESTION THREE:**LONG ANSWER QUESTIONS****(8 Marks)****ANSWER ALL QUESTIONS IN THIS SECTION.**

Write the answer to each question in the spaces provided.

It is in your best interest to **SHOW ALL YOUR WORKING**, as some marks are allocated for correct methods and partially correct answers.

1. Write 400,565,871 in **words**. (2 marks)

2. 'Aliko and 'Ofa bought a painting and paid for it in the ratio 4 : 2 respectively. If the painting cost \$72.00, calculate the amount paid by each person. (2 marks)

3. Naite has saved \$3000 to her account at the BSP Bank. The bank has offered 10% per annum interest rate for saving accounts.

- a) What is her **balance** after a year? (2 marks)

- b) Work out the **interest** on her savings of \$3000 invested at this bank after 2 years. (2 marks)

--

P.7

2

S.I

30

SECTION II:

GEOMETRY

(15 MARKS)

QUESTION ONE:

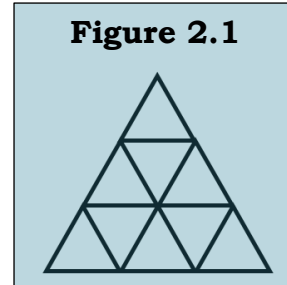
MULTIPLE CHOICE QUESTIONS

(3 Marks)

Circle the letter of the **BEST** answer.

1. How many **embedded triangles** are in **Figure 2.1**?

- A. 9
- B. 12
- C. 13
- D. 16

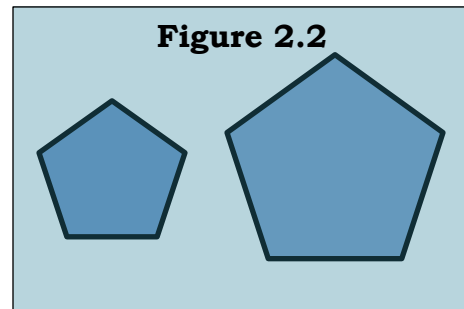


2. What is the **name** of a six-sided Polygon?

- A. Nonagon
- B. Octagon
- C. Hexagon
- D. Pentagon

3. The **relationship** between the shapes in **Figure 2.2** is _____.

- A. congruent and similar
- B. similar but not congruent
- C. both congruent
- D. neither similar nor congruent



QUESTION TWO:

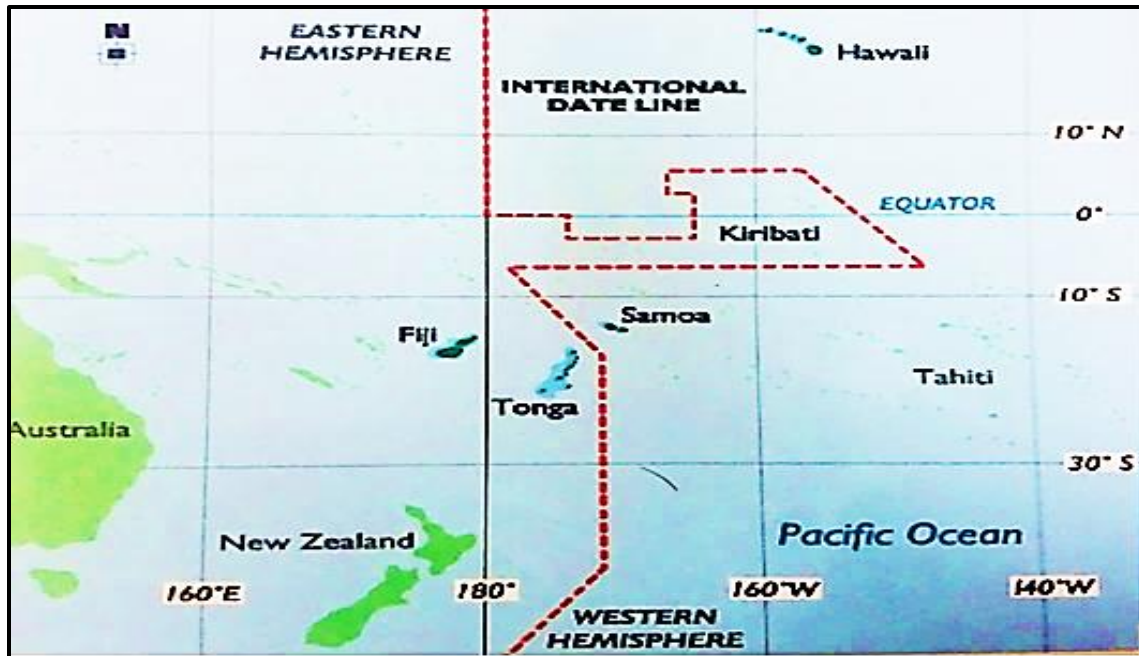
SHORT ANSWER QUESTIONS

(6 Marks)

ANSWER ALL THE QUESTIONS IN THIS SECTION.

Write the answer to each question in the spaces provided.

1. Answer the questions given below from the map.

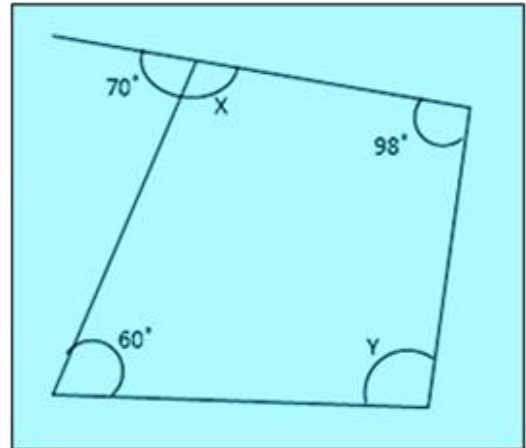


- a) Write the **name** of the country whose location has the coordinates of 178°East and 17°South. (1 mark)

- b) Use the map to identify the coordinates of the **location** of Hawaii. (1 mark)

2. **Calculate** the **angles** marked with the letters X and Y in **Figure 2.3** (2 marks)

Figure 2.3



a) $X =$ _____ (1 mark)

b) $Y =$ _____ (1 mark)

3. Use the pairs of your compass to **construct** 90° on line AB. (2 marks)

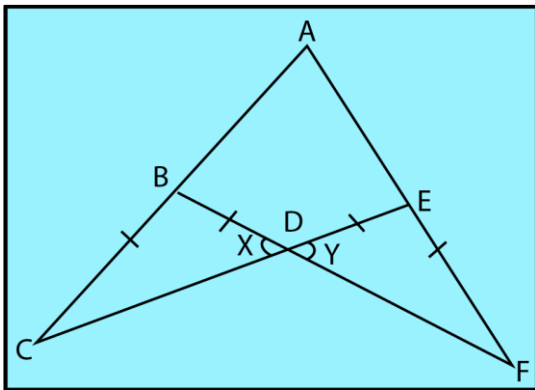
A ————— B

QUESTION THREE:**LONG ANSWER QUESTIONS****(6 Marks)****ANSWER ALL QUESTIONS IN THIS SECTION.**

Write the answer to each question in the spaces provided.

It is in your best interest to **SHOW ALL YOUR WORKING**, as some marks are allocated for correct methods and partially correct answers.

1. Name the triangle (Δ) that is congruent with triangle (Δ)BCD and then state 1 geometric reason for your answer.

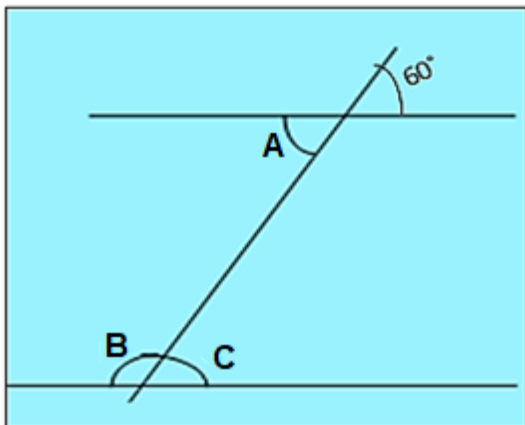


a) **Name** of the triangle (Δ) = _____ (1 mark)

b) Reason: _____

_____ (1 mark)

2. Find the size of angle A and C and then state their relationship to 60°



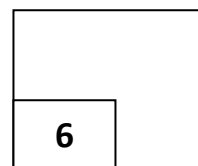
a) A = _____ (1 mark)

Relationship- _____ (1 mark)

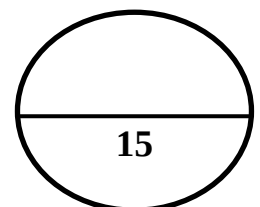
b) C = _____ (1 mark)

Relationship- _____ (1 mark)

P.11



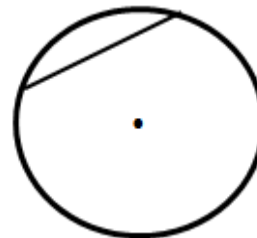
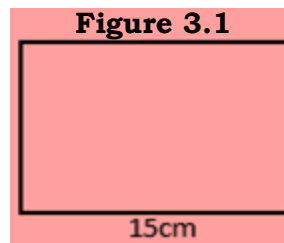
S.II



SECTION III:**MEASUREMENTS****(20 MARKS)****QUESTION ONE:****MULTIPLE CHOICE QUESTIONS****(4 Marks)**

Circle the letter of the **BEST** answer.

1. **Equinox** occur during the year on _____.
 A. June 22nd and December 22nd
 B. June 21st and September 21st
 C. March 21st and September 23rd
 D. March 21st and December 21st
2. How many **hectares** are in 1 square Kilometer?
 A. 100
 B. 1000
 C. 10000
 D. 100000
3. **Figure 3.1** is a Rectangle. Its perimeter is equal to 50cm. How long is its width?
 A. 15cm
 B. 13cm
 C. 12cm
 D. 10cm
4. Shown below is a circle, the line inside it is called a _____.
 A. Segment
 B. Radius
 C. Chord
 D. Diameter



P.12

QUESTION TWO:**SHORT ANSWER QUESTIONS****(8 Marks)****ANSWER ALL THE QUESTIONS IN THIS SECTION.**

Write the answer to each question in the spaces provided.

1. Convert the following measurements to the given unit.

a) 2500cm^2 to m^2 (**Hint:** $1\text{m}^2 = 10000\text{cm}^2$)

(1 mark)

--

b) 11:30 pm into 24 hour clock

(1 mark)

--

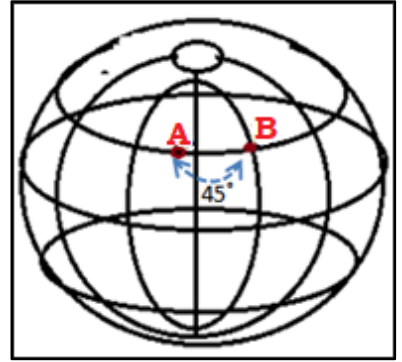
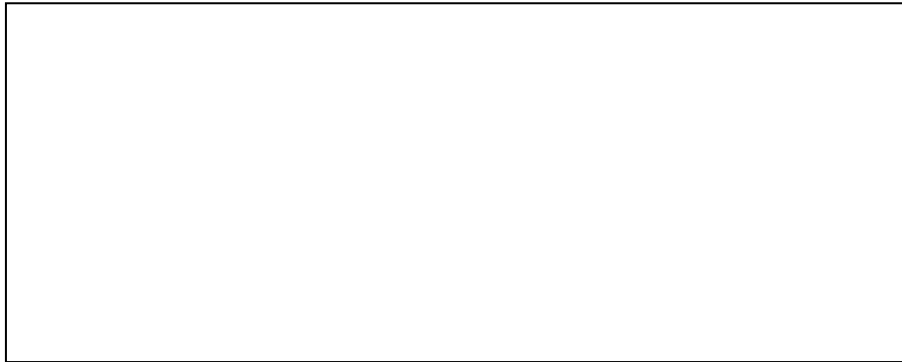
c) 6 hours and 40 minutes into seconds.

(2 marks)

--

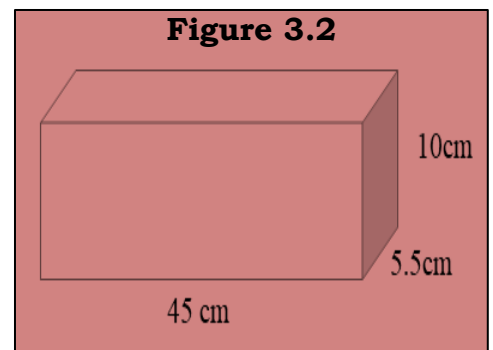
2. Calculate the **time difference** between Country A and B.

(2 marks)



3. Find the **volume** of this rectangular prism in Figure 3.2.

(2 marks)

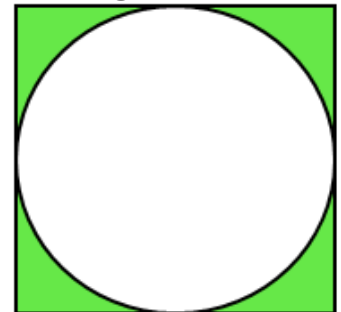


QUESTION THREE:**LONG ANSWER QUESTIONS****(8 Marks)****ANSWER ALL QUESTIONS IN THIS SECTION.**

Write the answer to each question in the spaces provided.

It is in your best interest to **SHOW ALL YOUR WORKING**, as some marks are allocated for correct methods and partially correct answers.

1. A circle is inscribed in a square in Figure 3.3. The area of a square is 36cm^2 . Calculate the **Circumference** of the circle. (Use $\pi=3.1$) (2 marks)

Figure 3.3

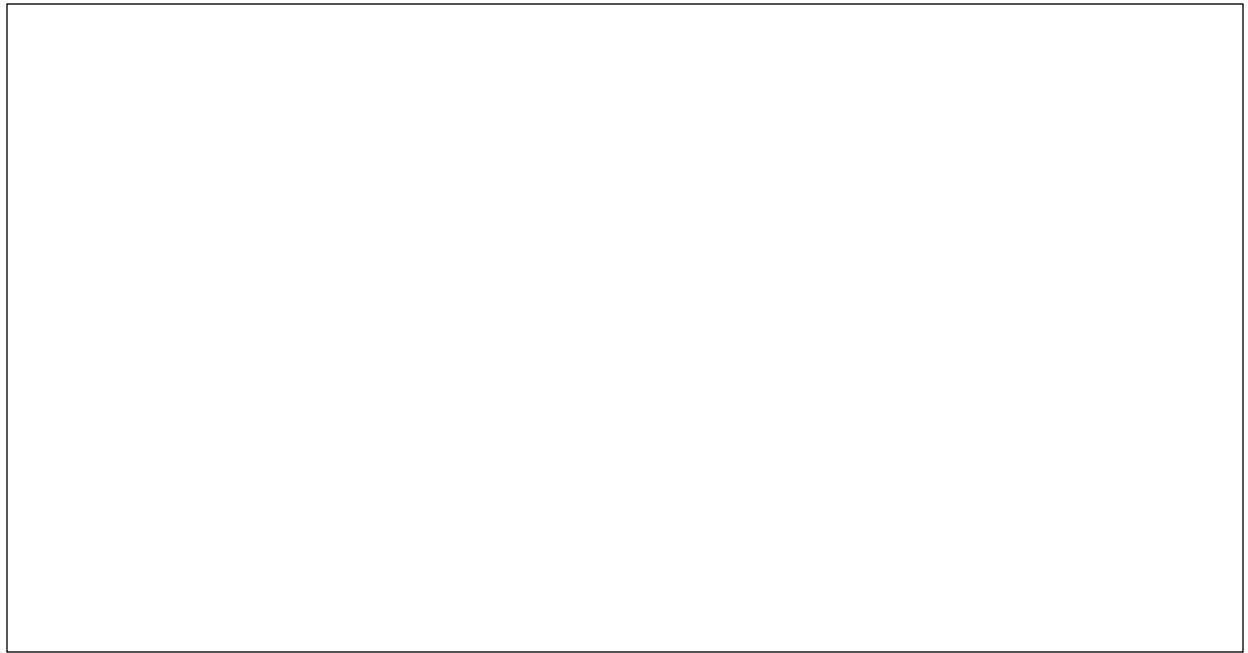
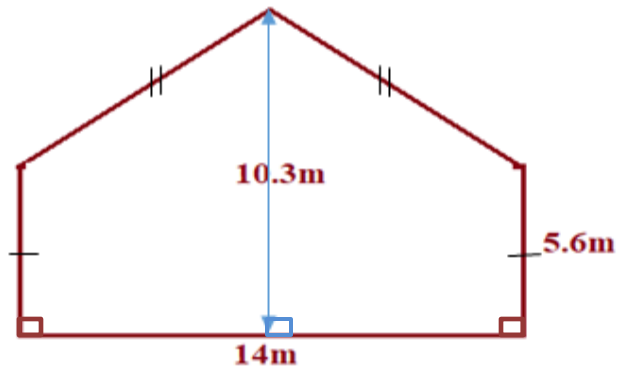
2. Langi's working hours started from 8:30am till 4:00pm. She used to be at work $1\frac{1}{2}$ hours earlier.
- a) What **time** did Langi arrive at her work place? (1 mark)

- b) Calculate the **duration** of her working hours (8:30 am to 4:00 pm). (2 marks)

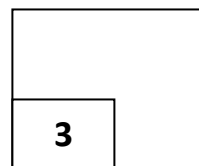
P.15

3. Find the **area** of this composite shape.

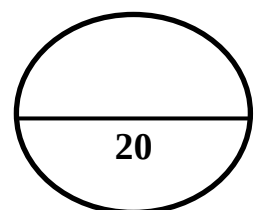
(3 marks)



P.16



S.III



SECTION IV:**ALGEBRA****(20 MARKS)****QUESTION ONE: MULTIPLE CHOICE QUESTIONS****(4 Marks)**Circle the letter of the **BEST** answer.1. $m^2 \times m^4$ is **equal** to _____.

A. m^2

B. m^4

C. m^5

D. m^6

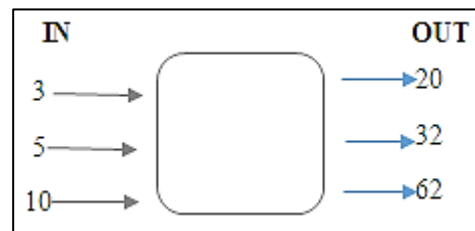
2. What will be the **rule** inside this function machine?

A. $\times 3 + 5$

B. $\times 6 + 2$

C. $\times 5 + 4$

D. $\times 2 + 6$

3. Which **mathematical sentence** is **best** for finding the value of x from $4x + 3 = 15$?

A. $-4 \text{ then } \div 5$

B. $-3 \text{ then } \times 5$

C. $-3 \text{ then } \div 4$

D. $-4 \text{ then } \times 3$

4. The 50th number on the number pattern below is _____.

$1 \times 5 + 2, \quad 2 \times 5 + 2, \quad 3 \times 5 + 2, \quad 4 \times 5 + 2, \quad \dots$

A. $50 \times 5 + 2$

B. $5 \times 50 + 2$

C. $5 \times 2 + 50$

D. $50 \times 5 + 2$

QUESTION TWO:**SHORT ANSWER QUESTIONS****(11 Marks)****ANSWER ALL THE QUESTIONS IN THIS SECTION.**

Write the answer to each question in the spaces provided.

- 1.
- Simplify**
- the following by collecting like terms.

a) $6a + 2p + 4a$

(1 mark)

--

b) $3(4x + 3 - 2x)$

(2 marks)

--

- 2.
- Solve**
- each equation for the unknown variable.

a) $2(3 + n) = 8$

(2 marks)

--

b) $\frac{x-8}{6} = 42$

(2 marks)

--

3. Write these mathematical statements using **algebraic expression**.

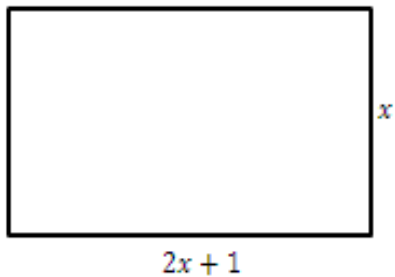
a) The sum of p and q .

(1 mark)

b) The average of a, b and c

(1 mark)

4. Use the formula $P = 2l + 2w$ to write the simplest expression for the **Perimeter** of this rectangle. (2 marks)

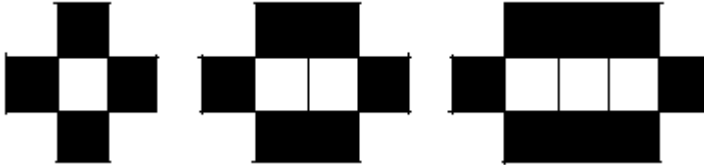


QUESTION THREE:**LONG ANSWER QUESTIONS****(5 Marks)****ANSWER ALL QUESTIONS IN THIS SECTION.**

Write the answer to each question in the spaces provided.

It is in your best interest to **SHOW ALL YOUR WORKING**, as some marks are allocated for correct methods and partially correct answers.

1. Bruno makes Black and White tiling patterns as shown.

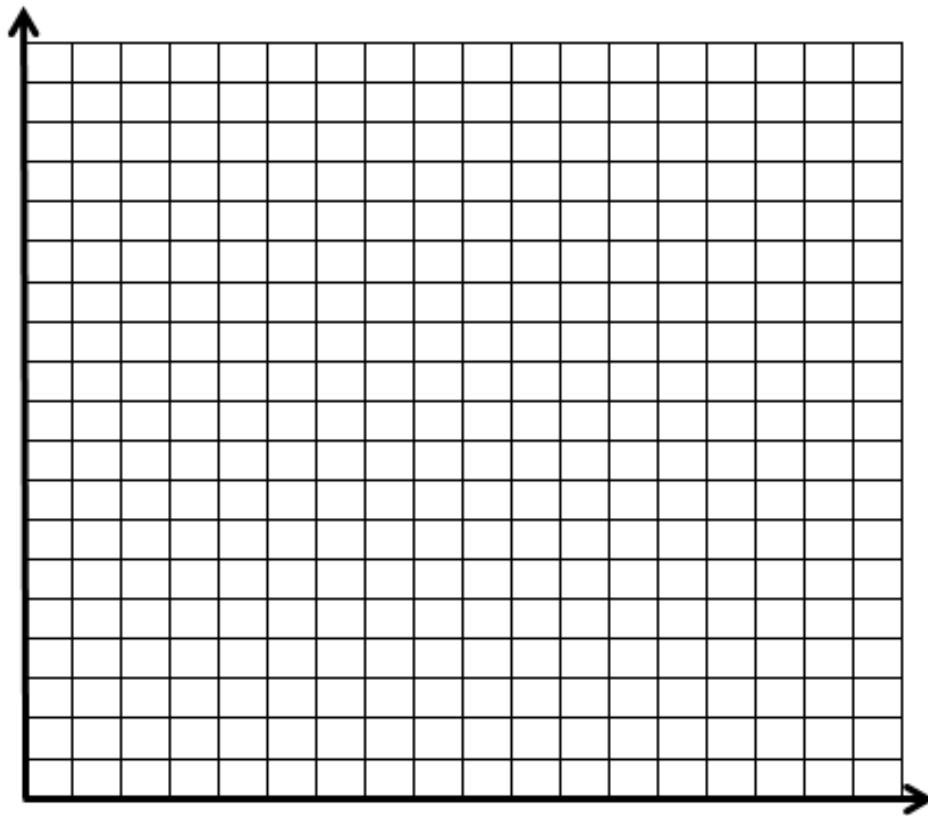


- a) **Complete** the table for the number of White Tiles and Black Tiles. (1 mark)

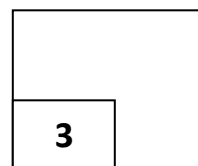
White (w)	1	2	3	4	5
Black (b)	4	6	8		

- b) Write a **formula** that shows the relationship between the **White Tiles (w)** and **Black Tiles (b)**. (1 mark)

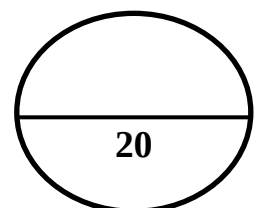
- c) **Sketch** a **line graph** using the ordered pairs from your table in a). (3 marks)



P.21



S.IV



SECTION V: STATISTICS/ PROBABILITY**(15 MARKS)****QUESTION ONE: MULTIPLE CHOICE QUESTIONS****(4 Marks)**

Circle the letter of the **BEST** answer.

1. The **most frequent** number from the set of scores is called _____.

- A. Range
- B. Mode
- C. Mean
- D. Top scores

2. What is the **median** from the data in the box below?

20, 30, 30, 10, 15, 40, 15, 35

- A. 10
- B. 20
- C. 25
- D. 30

3. Which of the following is an example of a **Discrete Data**?

- A. Height of the students.
- B. Weight of the students
- C. Number of the students
- D. Daily amount of money spent by the students.

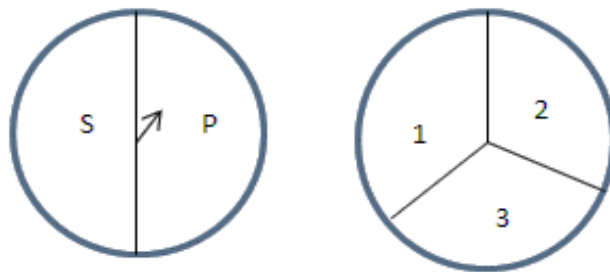
4. The **probability of death** for all humans is_____.

- A. 0
- B. 0.25
- C. 0.5
- D. 1

QUESTION TWO:**SHORT ANSWER QUESTIONS****(8 Marks)****ANSWER ALL THE QUESTIONS IN THIS SECTION.**

Write the answer to each question in the spaces provided.

1. Two fair spinners are spun together. One spinner has two halves, one with a **star (S)** and one **plain (P)** and the other has 3 numbers **(1, 2, and 3)**.



- a) Draw a **tree diagram** that shows all the possible outcomes. (3 marks)

- b) Find the **probability** of the outcomes that has:

- i. a **star** in them. (2 marks)

ii. an **even** number.

(2 marks)

--

iii. a number **greater than 4**.

(1 mark)

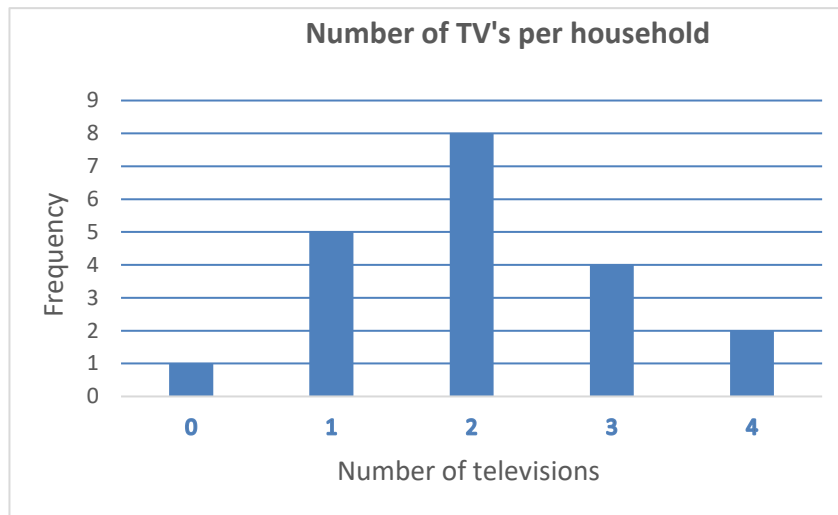
--

QUESTION THREE:**LONG ANSWER QUESTIONS****(3 Marks)****ANSWER ALL QUESTIONS IN THIS SECTION.**

Write the answer to each question in the spaces provided.

It is in your best interest to **SHOW ALL YOUR WORKING**, as some marks are allocated for correct methods and partially correct answers.

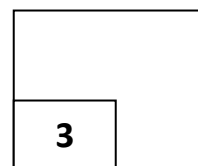
1. The Bar Graph below shows the number of televisions (TV) owned by 20 households.



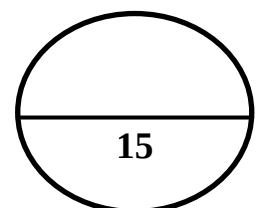
- a) How many households have more than 2 televisions? (1 mark)

- b) Calculate the **average** number of televisions per household. (2 marks)

P.25



S.V



THIS PAGE HAS BEEN DELIBERATELY LEFT BLANK.

STUDENT ENROLMENT NUMBER (SEN)

--	--	--	--	--	--	--	--	--	--	--

FORM TWO COMMON EXAMINATION

2020

MATHEMATICS

(For Markers Use Only)

SECTION	MARKS	CHECK MARKS	TOTAL MARKS
I			30
II			15
III			20
IV			20
V			15
TOTAL MARKS			100