

MARKER CODE			



STUDENT ENROLMENT NUMBER (SEN)									

FORM TWO COMMON EXAMINATION 2018

MATHEMATICS

QUESTION AND ANSWER BOOKLET

Time Allowed: 2 Hours

INSTRUCTIONS:

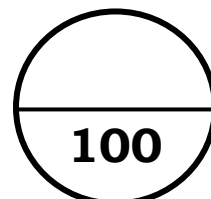
1. Write your **Student Enrolment Number (SEN)** on the top right hand corner of this page and on page 27.
2. This paper has **THREE SECTIONS**. ALL Sections are **COMPULSORY**.

SECTIONS		MARKS
SECTION A	Multiple Choice	20 MARKS
SECTION B	Short Answers	25 MARKS
SECTION C	Long Answers	55 MARKS

3. You are NOT allowed to use a calculator.
4. Write **NEATLY** and **CLEARLY**. Use a blue or black ballpoint pen only for writing. Use a pencil for drawing if required.
5. Answer **ALL** questions in the spaces provided for each question in this booklet. **SHOW ALL YOUR WORKING**.
6. Check that this booklet contains **27** pages and that pages 25-26 has been deliberately left blank.

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

TOTAL MARKS



SECTION A: MULTIPLE CHOICE QUESTIONS**(20 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

1. $3(4 + 7) = 3 \times 4 + 3 \times 7$. The **property of numbers** shown is _____.

- A. commutative
- B. distributive
- C. associative
- D. additive

2. All of these are **equivalent fraction** of $\frac{2}{3}$ except _____.

- A. $\frac{4}{6}$
- B. $\frac{8}{12}$
- C. $\frac{12}{21}$
- D. $\frac{18}{27}$

3. What is the **exact time**, if the time shown on the clock is 40 minutes **fast**?



- A. 6.10 pm
- B. 6.30 pm
- C. 6.40 pm
- D. 7.30 pm

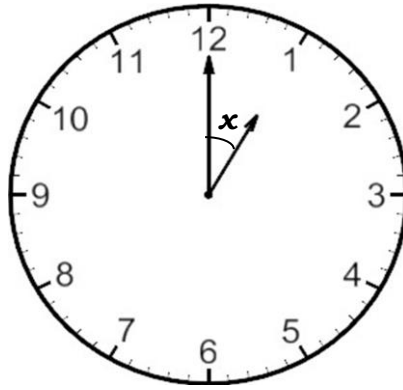
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4. The **estimated** height of a classroom door is _____.
- A. 1 km
 - B. 2 m
 - C. 100 cm
 - D. 550 mm
5. The volume of a cube is 27 cm^3 . What is the **length** of one edge of this cube?
- A. 3 cm
 - B. 6 cm
 - C. 9 cm
 - D. 18.5 cm
6. The reading shown on the speedometer is _____.



- A. 120 MPH
- B. 125 MPH
- C. 130 MPH
- D. 140 MPH

7. The **value** of angle x between the clock hands is _____.



- A. 30°
 B. 60°
 C. 120°
 D. 12°
8. A man carrying his bag has a total weight of 110 kg. The man weighs 95 kg. What is the **weight** of his bag?



- A. 205 kg
 B. 102.5 kg
 C. 95 kg
 D. 15 kg
9. If $A = -1$ and $B = 5$, what is the **value** of $-4A + B$?
- A. -1
 B. -9
 C. 1
 D. 9

Use the set of scores below to answer question 10 and 11.

19 , 12 , 9 , 6 , 15 , 12 , 9

10. The **mode** is ____.

- A. 12
- B. 9
- C. 12, 9
- D. 6

11. What is the **median**?

- A. 12
- B. 9
- C. 12, 9
- D. 6

12. “**Tossing a coin once; a head and a tail turns up**”. The outcome of the event described is _____ to happen.

- A. Possible
- B. Impossible
- C. Certain
- D. a Possibility

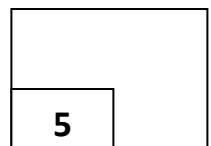
13. How many **minutes** are there in $2\frac{1}{4}$ hours?

- A. 240
- B. 160
- C. 135
- D. 75

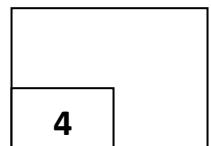
14. 20% of a class of 40 students are boys. How **many girls** are in the class?

- A. 8
- B. 10
- C. 20
- D. 32

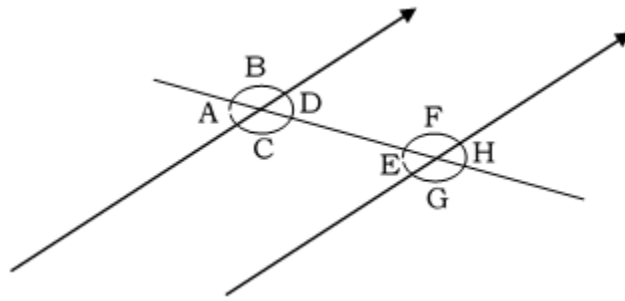
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15. The **perimeter** of a square is $4x$ cm. What is the **length** of one side of the square?
- A. 1 cm
 - B. x cm
 - C. 2 cm
 - D. $4x^2$ cm
16. The equivalent algebraic expression of '**three less than four times a number**' is:
- A. $(x - 3) \times 4$
 - B. $4x - 3$
 - C. $4x - 12$
 - D. $3x - 4$
17. A solid with **5 faces**, **6 vertices** and **9 edges** is called a _____.
- A. Triangular Prism
 - B. Triangular Pyramid
 - C. Cuboid
 - D. Square Pyramid
18. The **lowest common multiple** of 3, 9 and 12 is _____.
- A. 108
 - B. 48
 - C. 36
 - D. 3



Use the diagram given below to answer questions 19 and 20.



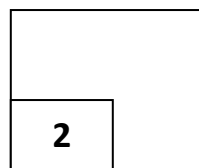
19. On the diagram, angle C and G is a pair of _____ angles.

- A. corresponding
- B. alternative
- C. opposite
- D. co-interior

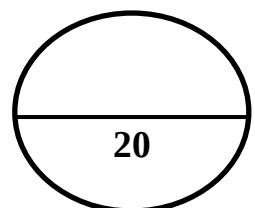
20. If angle C measures 120° , what is the value of angle E?

- A. 180°
- B. 120°
- C. 60°
- D. 30°

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SECTION B: SHORT ANSWER QUESTIONS**(25 MARKS)****ANSWER ALL THE QUESTIONS IN THIS SECTION.**

Write the answer to each question in the spaces provided.

Each question is worth 1 mark.

1. What is the **place value** of 5 in 265107? (1 mark)

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2. Round 28.074 to **one decimal place**. (1 mark)

--

3. a. List all the **square numbers** between 10 and 30. (1 mark)

--

- b. List all the **prime numbers** between 10 and 20. (1 mark)

--

4. Write **four thousands and forty four** in numerals. (1 mark)

--

5. Write the following number in **compact form**. (1 mark)

$$2 \times 10^5 + 4 \times 10^3 + 8 \times 10^2 + 3 \times 10^0$$

--

6. What **fraction** of the letters in COMMON EXAM is letter M? (1 mark)

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7. Lome borrowed 6 books from the library. Three of these were non-fiction books. What **percentage** of her library books were non-fiction? (1 mark)

--

8. Write 0.4 as a **fraction** in its lowest term. (1mark)

--

9. What is the **basic unit** for measuring length? (1 mark)

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10. a. What is the **time** shown on the clock face given below? (1 mark)



- b. Convert 1945 hours into **12-hour format**. (1 mark)

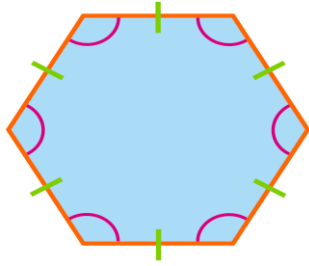
11. Using x to represent any number. Rewrite each word statements as an algebraic statement.

- a. If there are x apples in one bag, the number of apples in one bag plus 6 apples is (1 mark)

- b. Five less than double a number. (1 mark)

12. **Convert** 1.5 litres into millilitres. (1 mark)

13. Consider the **regular six-sided polygon** shown below.



- a. Name the polygon. (1 mark)

- b. What is the **sum** of all its **interior angles**? (1 mark)

14. **Calculate** the following:

- a. the **sum** of 12.5 and 7.1 (1 mark)

- b. $23.06 \div 10^3$ (1 mark)

15. Use the Tongan notes and coins shown below to answer the following questions.



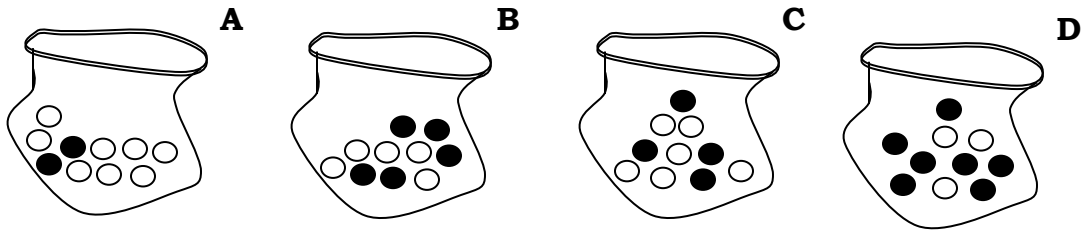
- a. What is the **total** amount of money shown above? (1 mark)

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- b. If Kalo uses all the above pa'anga to buy some sea food that cost \$50.
How much more money does she needs to pay for her food? (1 mark)

--

16. **Black Balls ●, White Balls ○**



Four bags are filled with **black balls** and **white balls** as shown above. Ten balls are placed in each bag.

a. Daniel who is blind-folded will win a price if he draws out a white ball.

i. Which bag gives Daniel the **best chance** of winning? (1 mark)

ii. Which bag gives Daniel an **even chance**? (1 mark)

b. The balls from all four bags are thrown together in **one** large bag.

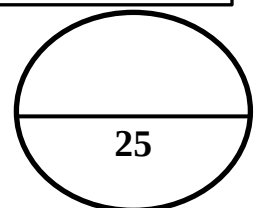
i. How many balls are there altogether? (1 mark)

ii. What is the **probability** of drawing a white ball from the large bag? (1 mark)

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SECTION C:**LONG ANSWER QUESTIONS****(55 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.

QUESTION ONE**NUMBERS****(13 Marks)**

1. Express 216 in **prime factors** using index notation. (2 marks)

2. Jennifer had \$290 in her bank account. She withdrew \$92.
How much money remains in her bank account? (2 marks)

3. **Calculate:** $\frac{1}{5} + \frac{1}{2} \times \frac{2}{3}$ (2 marks)

4. What would the population be in the year 2000? If;
- a. the population of Tonga in 1996 was 101,991
 - b. the increase rate of population was 150 people per year
 - c. only 130 people died during the period 1997-2000. (3 marks)

5. The mobile money charge **10% fees** for any amount transfer.
- a. What is the **fee** if you transfer \$400 in mobile money? (2 marks)

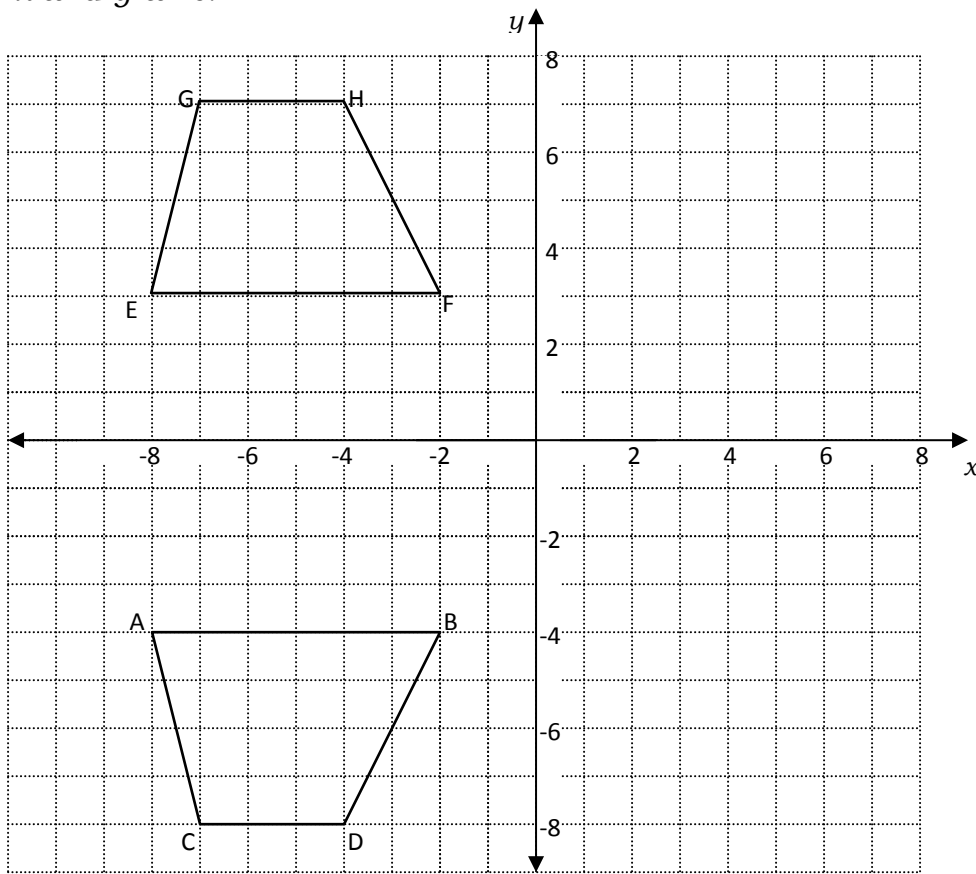
- b. How much money did Paea transferred if he paid \$100 fees? (2 marks)

QUESTION TWO

GEOMETRY

(14 Marks)

1. Shown below are the **quadrilaterals ABCD** and its image **EFGH** on a pair of x and y -axis.



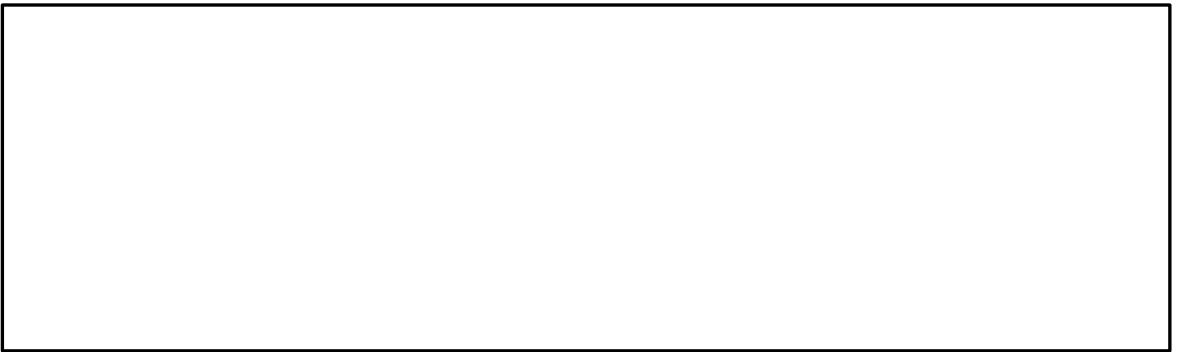
- a. What **name** is given to this type of quadrilateral? (1 mark)

- b. Write down the **co-ordinates** of vertex A. (1 mark)

- c. Calculate the **area** of quadrilateral ABCD. (2 marks)

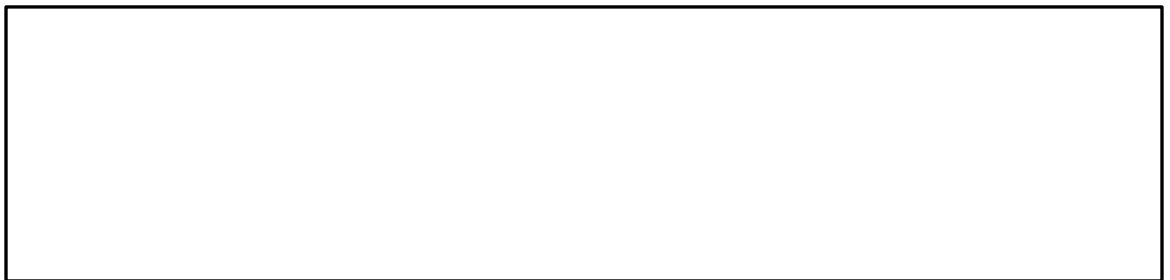
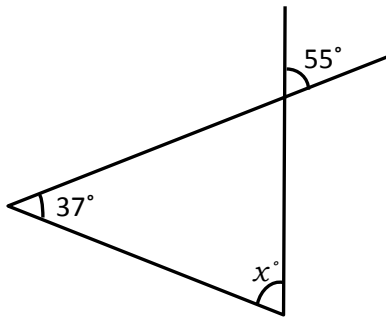


- d. Quadrilaterals ABCD and EFGH are **congruent**. Explain why? (2 marks)



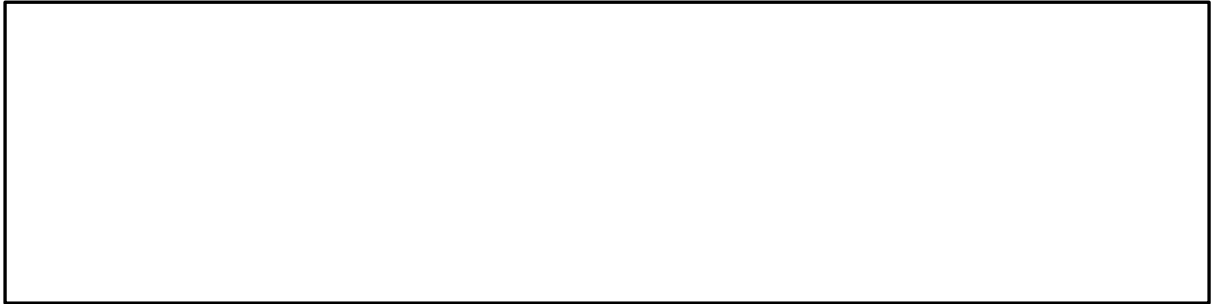
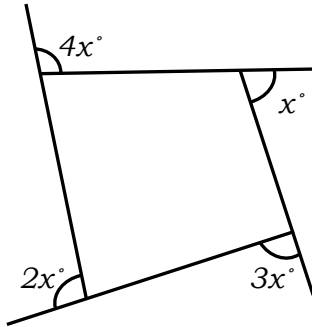
2. Calculate the value of **angle x** in the diagrams below.

- a. (2 marks)

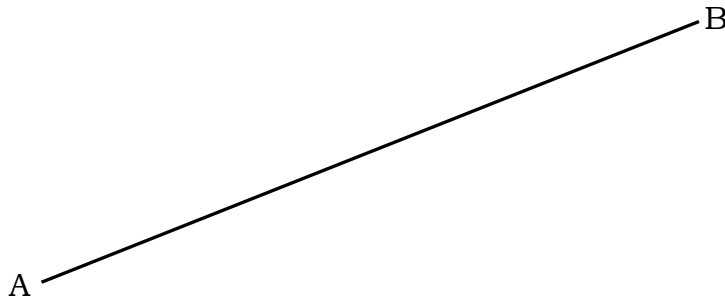


b.

(2 marks)



3. a. Use a **pair of compass** to **bisect** the line AB shown below. (2 marks)



- b. Use a pair of compass to accurately construct an angle of **120°** on the line below. (Show all the necessary construction arcs and lines.) (2 marks)

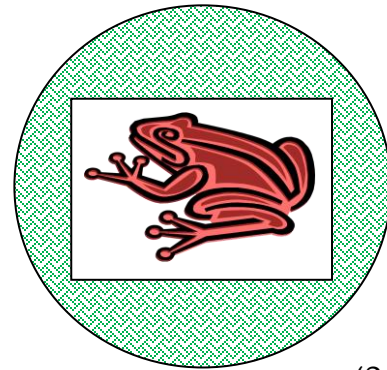


QUESTION THREE**MEASUREMENTS****(9 Marks)**

1. Calculate the **radius** of a circle if its circumference is 74.4 cm.
You must use $\pi = 3.1$ to solve this problem.

(2 marks)

2. A **rectangular** photo measuring 24 cm by 21 cm is being mounted on **circular** green cardboard with a radius of 20 cm, as shown in the diagram below. Calculate the **area** of green cardboard still visible after mounting the photo.

Use $\pi = 3.14$ **(3 marks)**

3. A film starts at 11.15 am and finished at 1.10 pm on the same day.
How **long** is the film? (2 marks)

4. Work out the **total number of days** from 9th of March to 20th of June. (2 marks)

QUESTION FOUR**ALGEBRA****(11 Marks)**

1. Study the **pattern** below to answer the following questions.

x	1	2	3	4	5	6
y	5	7	9	11		

- a. **Complete** the table. (1 mark)
- b. Write a statement connecting x and y . (2 marks)

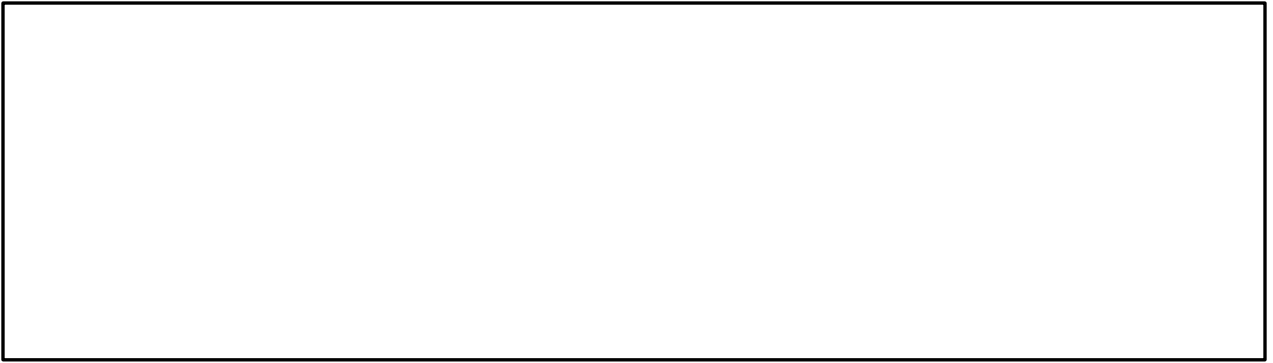
- c. If $x = 50$, what is the value of y ? (1 mark)

2. a. Use the **distributive law** to expand $3a(a + 2)$ (1 mark)

- b. **Simplify** $6x - y + 3x + 5y$. (2 marks)

3. **Solve** $3(x - 2) = 14 + x$

(2 marks)



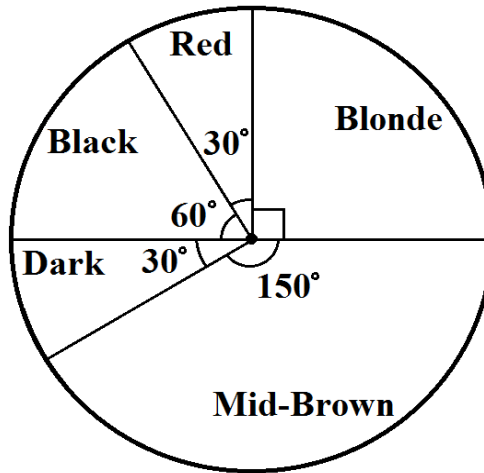
4. The length of a **rectangle** is 5 cm. Calculate the **width** if the area is 20 cm².

(2 marks)



QUESTION FIVE**STATISTICS****(8 Marks)**

1. The pie chart given below shows the **hair colours of 240 Form 2 students**.



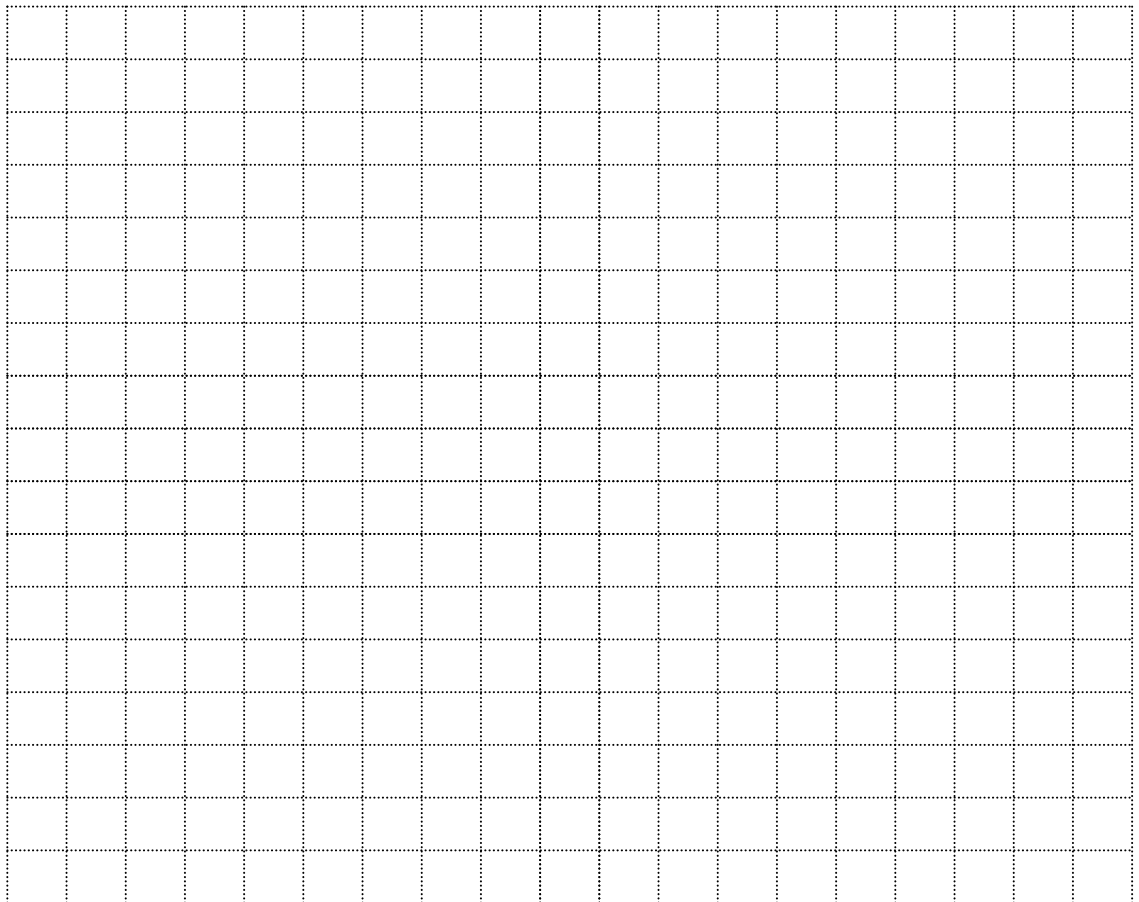
- a. Which hair colours had the **same** number of pupils? (1 mark)

- b. How many pupils had **Mid-Brown** hair? (2 marks)

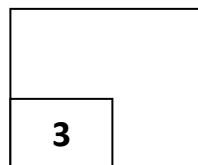
- c. What **percentage** of pupils had Black hair? (2 marks)

2. **Draw a bar graph** of the total number of heads recorded when 5 coins were thrown 50 times. (3 marks)

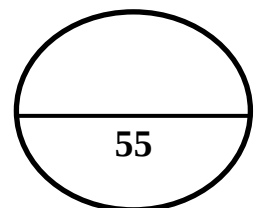
Number of Heads (x)	0	1	2	3	4	5
Frequency (f)	5	6	14	15	5	5



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STUDENT ENROLMENT NUMBER (SEN)

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FORM TWO COMMON EXAMINATION 2018 MATHEMATICS

(For Markers Use Only)

SECTION		MARKS	CHECK MARKS	TOTAL MARKS
A	Multiple Choice			20
B	Short Answers			25
C (Long Answers)	Question One			13
	Question Two			14
	Question Three			9
	Question Four			11
	Question Five			8
TOTAL MARKS				100