

MARKER CODE			



STUDENT ENROLMENT NUMBER (SEN)									

FORM 2 COMMON EXAMINATION

2017

MATHEMATICS

QUESTION AND ANSWER BOOKLET

Time Allowed: 2 Hours

INSTRUCTIONS

1. This paper has **THREE Sections**. ALL Sections are **COMPULSORY**.

SECTION A:	Multiple Choice	20 MARKS
SECTION B:	Short Answers	25 MARKS
SECTION C:	Long Answers	55 MARKS
2. Write your **Student Enrolment Number (SEN)** on the top right hand corner of this page and on page 27.
3. You are **NOT** allowed to use a calculator.
4. Answer **ALL** questions in the spaces provided for each question in this booklet. **SHOW ALL YOUR WORKING.**
5. 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

100

SECTION A MULTIPLE CHOICE QUESTIONS (20 MARKS)

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

1. The place value of **7** in the number 3 6**7**9 210 is _____.

A. hundreds
B. thousands
C. ten thousands
D. hundred thousands

2. Mr. Hui bought $\frac{1}{2}$ kg sugar. This is equal to _____.

A. 100 g
B. 200 g
C. 300 g
D. 500 g

3. A regular _____ has eight equal angles.

A. decagon
B. nonagon
C. octagon
D. heptagon

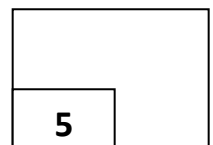
4. Which number does **not** belong to the pattern shown below?
... 101, 110, 119, 128, 136 ...

A. 110
B. 119
C. 128
D. 136

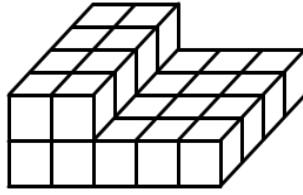
5. Subtracting 232,411 from 456,721 would give:

A. -224,310
B. 224,301
C. 224,310
D. -689,132

P.2



6. The diagram shows the 1 cm cubes that are used to make the first two layers of a set of steps.



What is its total volume in cm^3 ?

- A. 20
- B. 23
- C. 28
- D. 30

Use the table below to answer **Questions 7 and 8**.

A student scored the following marks in a test.

English	98
Maths	70
Science	90
Tongan Language	78
Movement and Fitness	56

7. The **range** of the students' marks is _____.

- A. 42
- B. 65
- C. 78
- D. 98

8. The subject with the **median** score is _____.

- A. English
- B. Maths
- C. Science
- D. Tongan Language

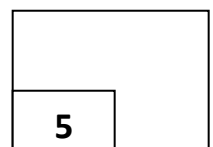
9. If 2.55 is multiplied by 1000, the correct answer would be _____.
- A. 2550
B. 255
C. 25.5
D. 2.55
10. When we convert the decimal number 1.1 to percentage, it would be equal to:
- A. 110 %
B. 100 %
C. 11 %
D. 10 %
11. What is the highest common factor (HCF) of 6 and 12?
- A. 2
B. 3
C. 6
D. 12
12. $a \times 3b \times 4c = \square$
- A. 12ab
B. 12ac
C. 12bc
D. 12abc
13. The table below shows the number of children who wore each of the following colours of clothes to a birthday party.

Colours	Red	Yellow	Green	Blue	Orange
Number of children	30	14	20	26	32

How many **more** children wore red than green clothes?

- A. 10
B. 14
C. 20
D. 30

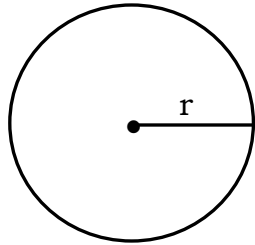
P.4



14. Teu must be at work at 8.00 o'clock in the morning. He arrived at his workplace $\frac{1}{2}$ an hour early. At what time did he arrive?

- A. 8.30 am
- B. 8.00 am
- C. 7.30 am
- D. 7.00 am

Use the diagram of the circle given below to answer **Question 15**.



15. If $r = 5$ cm, the value of r^2 is _____.

- A. 25 cm^2
- B. 20 cm^2
- C. 10 cm^2
- D. 5 cm^2

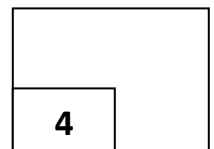
16. The sum of $\frac{1}{3}$ and $\frac{1}{2}$ is equal to _____.

- A. $\frac{1}{6}$
- B. $\frac{2}{6}$
- C. $\frac{4}{6}$
- D. $\frac{5}{6}$

17. If two angles x° and 34° are said to be **co-interior** in a pair of parallel lines and a transversal line, the value of angle x would be _____.

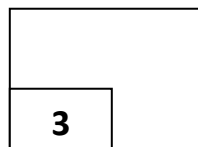
- A. 34
- B. 56
- C. 146
- D. 326

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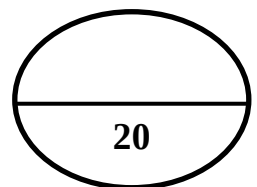


18. James borrowed \$100 from his boss. His boss charged a 20% interest on the money he borrowed. How much money did James pay his boss altogether?
- A. \$ 200.00
B. \$ 120.00
C. \$ 100.00
D. \$ 20.00
19. The distance from Fua'amotu International Airport to Kanokupolu through Taufa'ahau road is 32 km. It took a car 2 hours to travel the distance. The average speed of the car is _____.
- A. 12 km/h
B. 14 km/h
C. 16 km/h
D. 18 km/h
20. A six-sided die is rolled once. What is the probability that the number rolled is a seven?
- A. 0
B. $\frac{1}{2}$
C. $\frac{1}{6}$
D. 1

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S.A



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. Answer all the questions.*

1. Write 'four hundred and fifty six thousands, two hundred and one' in numerals. (1 mark)

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2. Evaluate: 2^4 (1 mark)

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3. Simplify if possible: $5mn - mn$ (1 mark)

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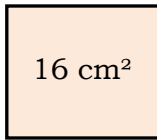
4. How many edges does a triangular based prism have? (1 mark)

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5. Change 1423 hours into the 12 hour clock format. (1 mark)

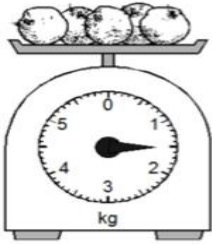
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6. A square has an area of 16 cm^2 . What is the length of one side? (1 Mark)

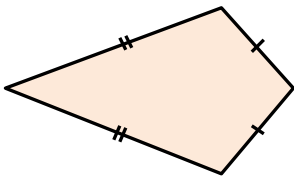


7. Mele had \$150 and she donated \$75 to her church concert. What percentage of the money did she donate? (1 Mark)

8. What is the reading on the scale below? (1 Mark)



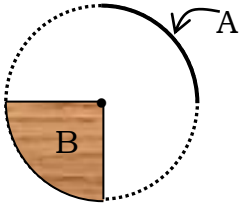
9. The name of the quadrilateral shown below is _____. (1 Mark)



10. List the first five composite numbers. (1 Mark)

11. Express $\frac{17}{5}$ as a mixed fraction. (1 Mark)

12. Name the parts of the circle indicated by the letters. (2 Marks)



A: _____

B: _____

13. Use the symbol $<$, $>$ or $=$ to compare the values of these numbers. (2 Marks)

a. -4 -10

b. 1.200 1.2

14. Work out the following problems

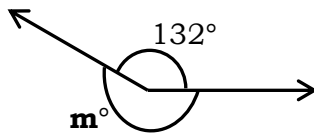
a. $a^0 \times 4$ (1 Mark)

b. $x - x - x$ (1 Mark)

- c. Change 9% into fraction. (1 Mark)

- d. Change 230 millilitres into litres. (1 Mark)

15. Use the diagram of an angle below to answer the following questions.



- a. What is the name of angle **m**? (1 Mark)

- b. Calculate the size of angle **m**. (1 Mark)

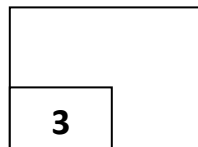
16. A student leaves his home in Manuka at 7 am. He arrives at school after one hour and ten minutes. What time does he reach the school? (1 Mark)

17. Find the value of a when $4a = 12$. (1 Mark)

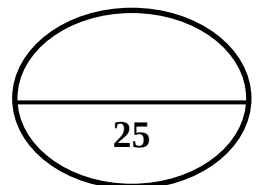
18. A math club has 25 members, of which 11 are males and the rest are females. What is the ratio of males to all club members? (1 Mark)

19. The sum of the interior angles of an irregular polygon is 720° . How many sides are there in this polygon? (1 Mark)

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S.B



SECTION C:**LONG ANSWER QUESTIONS****(55 MARKS)****ANSWER ALL THE QUESTIONS IN THIS SECTION.**

*Write the answer to each question in the spaces provided.
It is for your best interest to **SHOW ALL YOUR WORKING**, as some marks are allocated for correct methods and partially correct answers.*

Each question is worth 11 marks.

QUESTION ONE**(11 marks)**

- a. Write 7 305 409 in words. (2 Marks)

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- b. Write the prime factors of 108 in product form. (2 Marks)

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- c. Write 673 201 in expanded forms using index notation. (2 Marks)

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P.12

- d. Calculate: $\frac{9}{10} - \frac{3}{4}$ (2 Marks)

- e. Mr. Saia bought a 25 kg bag of sugar for \$40.00 from a supermarket.
- i. Mr. Narayan wanted to pack sugar into small plastic bags of 500 g. How many small bags of sugar will he pack from the 25 kg bag? (2 Marks)

- ii. How much money will he earn if he sold all the small bags of sugar for \$1.00 per bag? (1 Mark)

QUESTION TWO

(11 marks)

- a. A bank offers 12% interest rate for a savings account. What is the amount of interest after one year if you invest \$200? (2 Marks)

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- b. Mrs. 'Ana bought a double bed on **hire purchase**. The **cash price** is \$750 but she deposited \$200 and pays \$86 as monthly installments for 1 year.

- i. What is the total installment paid for the bed? (1 Mark)

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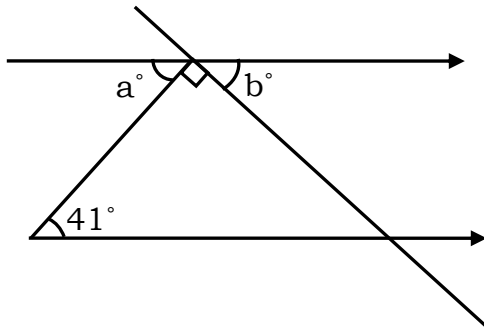
- ii. If she bought the bed on cash how much money could she save at the end of the year? (2 Marks)

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- iii. Which of the two methods of buying is cheaper? (1 Mark)

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- c. Use the diagram below to answer the following questions.



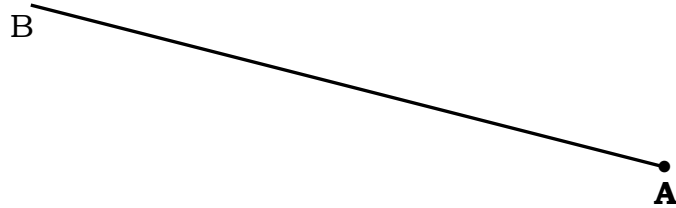
- i. Name the relationship between angle a° and 41° . (1 Mark)

- ii. Calculate the value of angle b and give geometric reason(s) to support your answer. (2 Marks)

Angle $b =$ _____

Reason: _____

- d. Use a pair of compass to construct an angle of **60°** at point **A** on the line below.
(2 Marks)



QUESTION THREE

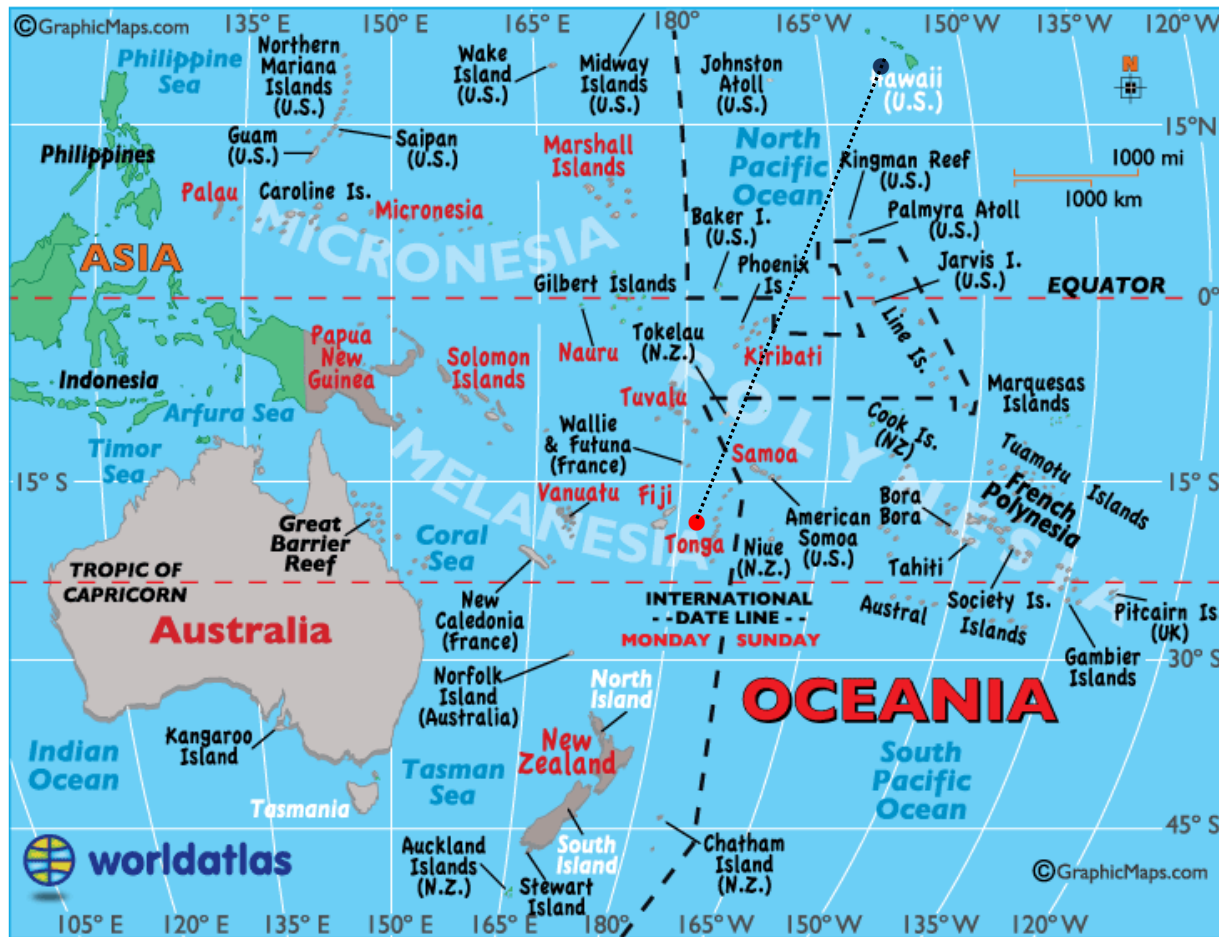
(11 marks)

- a. Explain the features of two **similar triangles** and use diagrams to clarify your explanation.
(2 Marks)

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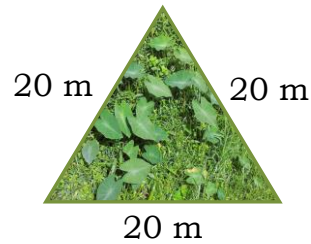
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- b. Use the map below to answer the following questions.



- i. Completion: According to the map, the location of **Tonga** is approximately and 175° West. (1 Mark)
- ii. Use the scale on the map to estimate the distance by air (indicated by the dotted line) from Tonga to Hawaii in kilometres. (2 Marks)

- c. Joe owns a triangular farm as shown below and he wants to fence it. He needs to fence the farm using **three rows of wire**.

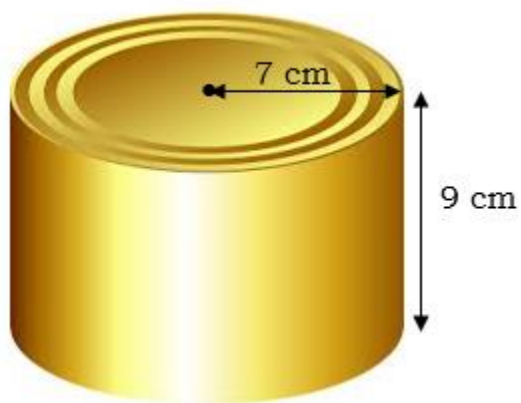


- i. What is the perimeter of Joe's triangular farm? (1 Mark)

- ii. How many metres of wire is needed to fence the triangular farm? (1 Mark)

- iii. If the cost of wire is \$6.00 per metre, calculate the total cost of wire needed to fence the farm. (2 Marks)

- d. Using the formula $V = \pi r^2 h$, calculate the **volume** of the tin can.
Use $\pi = \frac{22}{7}$.



(2 marks)

QUESTION FOUR**(11 marks)**

- a. The following table shows  flight schedule information in Tonga on August 10th 2017.

Flight Number	From	To	Depart Time	Arrival Time
RT920	Tongatapu	'Eua	0810 hrs	0825 hrs
RT921	'Eua	Tongatapu	0845 hrs	0900 hrs
RT801	Tongatapu	Vava'u	0900 hrs	1000 hrs
RT891	Tongatapu	Ha'apai	0930 hrs	1020 hrs
RT802	Vava'u	Tongatapu	1030 hrs	1130 hrs
RT892	Ha'apai	Tongatapu	1040 hrs	1130 hrs
RT871	Tongatapu	Vava'u	1200 hrs	1300 hrs

- i. How long did it take to get from Tongatapu to Ha'apai? (2 Marks)

- ii. How much later than the flight RT801 is the flight RT871 to Vava'u scheduled to depart? (1 Mark)

- iii. If flight RT801 to Vava'u was delayed by 40 mins. What was the new departure time that will be displayed? (2 Marks)

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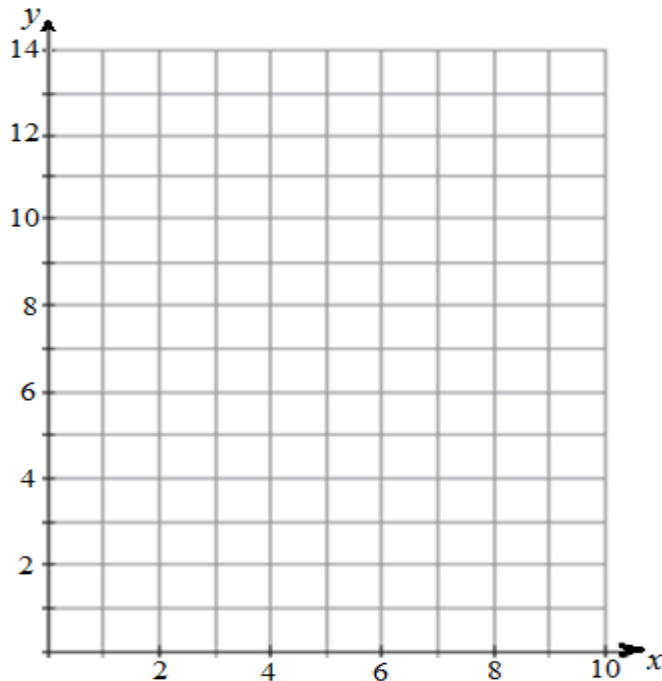
- b. The table below shows the **input** and **output** of a number machine. A student was calculating x (*output*) and y (input) with the formula $y = 2x + 2$.

x	0	1	2	3	5	10	s
y	2	4	6	m	12	22	52

- i. What is the value of **m**? (1 Mark)

- ii. Work out the value of **s**. (*You must show your working*) (2 Marks)

- iii. Use the ordered pairs in the table to sketch a **line graph** through the points. (3 Marks)



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QUESTION FIVE**(11 marks)**

- a. Solve the equation $5(x - 4) = 15$ by reversing the order of operation.

(2 Marks)

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- b. Sione is twice as old as his wife plus 1 year. Sione is 49 years old.
Write an **equation** to represent the above problem. You do **not** need to solve the equation.

(1 Mark)

Hint: Let x be the age of Sione's wife.

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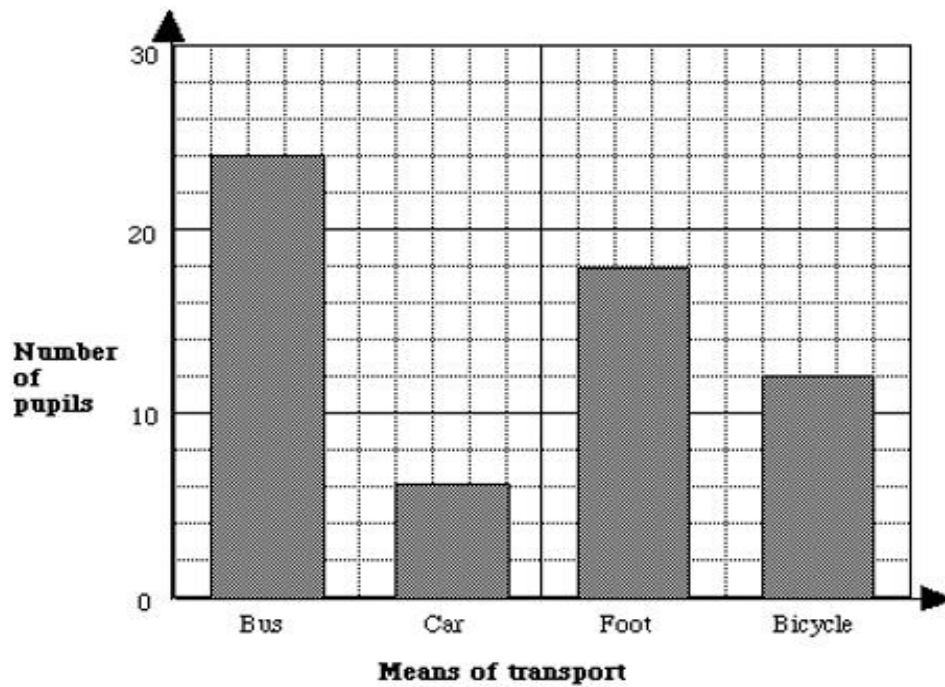
- c. State **ONE** (1) method in which data can be gathered for a statistical investigation.

(1 Mark)

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- d. Use the bar graph below to answer the following questions.

How Pupils travel to school



- i. What is the most common means of transportation? (1 Mark)

- ii. What fraction of the total number of pupils does **not** travel by foot? (2 Marks)

- e. If you rolled an ordinary six sided die. What is the probability that it would be:
- i. a three? (1 Mark)

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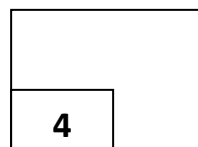
- ii. prime number? (1 Mark)

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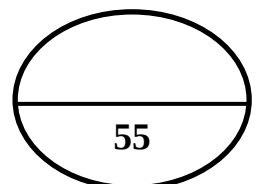
- f. Use a tree diagram to show all possible outcomes when two coins are tossed together at the same time. (2 Marks)

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STUDENT ENROLMENT NUMBER (SEN)

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FORM 2 MATHEMATICS

2017

(For Markers Use Only)

SECTION		Mark		Check Marker
A	Multiple Choice	20		
B	Short Answers	25		
C (Long Answers)	Question One	11		
	Question Two	11		
	Question Three	11		
	Question Four	11		
	Question Five	11		
TOTAL MARKS		100		