Mission Heights Junior College
Year 9 Examination 2017
Subject: Mathematics

Name:_____

_____

Whanau: Mountains

<u>Instructions:</u>

Time allowed for this examination is 1 and a half hours.

You should attempt all the required questions in this examination. You are allowed to use a calculator.

Start writing when you are instructed to do so. You have 5 minutes of reading time before you start writing.

Use the space provided after each question to write all your answers. If you need extra writing sheets then ask your teacher.

Check that this booklet has _____ pages in the correct order and a separate planning sheet.

YOU MUST HAND THIS BOOKLET TO THE TEACHER AT THE END OF THE TEST.

Working Towards	Achieved	Merit	Excellence

WAME

Student ability/understanding…..

Section	Working Towards	Achieved	Merit	Excellence
Number	You have attempted to solve problems involving integers, decimals and fractions .	You have solved problems involving integers, decimals and fractions	You have solved number problems involving few steps	You have Solve number problems in context involving several steps.
Algebra	You have attempted to Carry out simple algebraic manipulations and solve simple equations	You have Carried out simple algebraic manipulations and solve simple equations.	You have carried out more complex algebra manipulations and solve linear equations.	You have solved algebra problems involving manipulation.
	You have ….	You have ….	You have ….	You have ….
	You have ….	You have ….	You have ….	You have ….
Examination Conditions	You have completed this assessment, however you did not adhere to Examination conditions.	You have completed this assessment, adhering to Examination conditions.	You have completed this assessment, adhering to Examination conditions.	You have completed this assessment, adhering to Examination conditions.

Section A: Number common

Section instructions:...._ie You are required to answer all questions in this section. You should spend about 25 minutes completing this section._
 **Please make sure that you show your working steps**.

QUESTION ONE

(a) Rufus is a cute family dog; he eats two cups of dog food biscuits per day. How many cups of biscuits does Rufus eat in a week?   (A)

_____

(b) A full bag of dog food weighs 2000g. One cup of dog food weighs 125g. How many cups of dog food are there in one bag of food?   (A)

_____

(c) Last week Rufus stole a full bag of Smackos dog treats from the pantry while his owners were at work.

The bag contained 30 dog treats. Rufus ate the treats over a 2 hour period, how many treats did Rufus eat per hour?   (A)

_____

(d) Rufus weighs 24kg. When he was born he weighed ¼ of his current weight. What did Rufus weigh when he was born?   (M)

_____

(e) Rufus' dog food biscuits contain chicken and fish flavoured biscuits. In each packet the ratio of fish biscuits to chicken biscuits is 1:4. From a bag of 100 biscuits, how many would be fish biscuits?   (E)

_____

_____

_____

(f) Rufus loves to go for walks. He goes for a 45 minute walk each week day and a one hour walk on a Saturday and has a rest day on Sunday. Hour many hours of walking does Rufus do every year?   (E)

_____

_____

_____

QUESTION TWO

(a) Calculate the following:

(i) -7 x -3 = _____((A)

(ii) -5 + 8 = _____   (A)

(iii) 15 – 3 x 4 = _____   (A)

(iv) 5(6-3) + 2 x 2 =_____   (A)

(v) $(-4)^3$ =   _____   (M)

(vi) 6 – 3(7-9) + 2 = _____   (A)

(b) One frosty Saturday morning when Rufus went for his walk the temperature was minus 2 degrees. During the walk the temperature increased by 6 degrees. What was the temperature when Rufus returned home?   (A)

_____

QUESTION THREE

 A pure breed dog like Rufus usually costs $1,200. Rufus's owners received a 25% discount.

(a) How much did Rufus cost?   (E)

_____

(b) Write 25% as fraction in its simplest form.   (A)

_____

(c) Rufus' sibling called Channel was a rare colour. Her sale price was 15% more than $1,200. Calculate Channel's sale price.   (E)

_____

_____

_____

QUESTION FOUR

The vet has advised the following to help improve Rufus' health.

- Feed him ¾ of his current biscuit allocation per day
- Double his daily 45 minute walking time on weekdays
- Feed him $1\frac{1}{2}$ tablets of vitamin twice a week.

(a) Instead of 2 cups of food per day, how many cups of food will Rufus receive? (M)

_____

_____

(b) How many minutes will Rufus need to walk each week day? (A)

_____

(c) How many cups of vitamin supplement is given in a week? (M)

_____

QUESTION FIVE

Rufus is a show dog and has qualified to attend the National New Zealand dog show in Auckland,

The entry fee for the show is $200.

Rufus will fly with his owner, Barry to Auckland. The return airfare costs $1 500.

Air New Zealand also charges a pet carrier fee of $75 return.

Accommodation in Auckland costs $150 a night. Four nights' accommodation will be needed.

Four days car hire will be needed. Car hire costs $75 a day.

Rufus won $500 at the regional pet show for "best in Show". His owner will use this money to help pay for the trip to Auckland.

Barry will save some of his pay each week so that he can afford to take Rufus to the show. The show is in 15 weeks. How much will Barry need to save each week? (E)

_____

_____

_____

_____

_____

Section B: Algebra

Section instructions:....ie *You are required to answer all questions in this section. You should spend about 35 minutes amount of time completing this section.*

QUESTION ONE

Simplify the following

(a) $3c \times 10 =$ _____ (A)

(b) $2y + 3y - y =$ _____ (A)

(c) $5a \times 4b =$ _____ (A)

(d) $7y - 2p + 4y - 3p =$ _____ (M)

(e) $\frac{20y}{5y} =$ _____ (E)

(f) $z \times z \times z \times z \times z =$ _____ (M)

(g) $7b \times 5b =$ _____ (E)

(h) $6f^2 \times 2f^5 =$ _____ (E)

QUESTION TWO

Expand and simplify the following

(a) $5(x - 4) =$ _____ (A)

(b) $x(7 - x) =$ _____ (M)

(c) $4(7g + 3) - 3(2g - 7) =$ _____ (M)

(d) $(x + 4)(x + 5) =$ _____ (E)

QUESTION THREE

Factorise the following

(a) $7w - 35 =$ _____ (A)

(b) $4y^2 - 16y =$ _____ (M)

(c) $3y^7w^5 - 18y^9w^3 =$ _____ (E)

(d) $x^2 + 5x + 6 =$ _____ (E)

QUESTION FOUR

(a) If x = 5 and y = 3 find the value of $3x - 2y$.

_____ (A)

(b) The formula for the volume of a cone is:

$V = \frac{1}{3} \pi r^2 h$ (V = volume, r = radius, h = height)

Calculate the volume of a cone with a radius of 10cm and a height of 20cm. (M)

_____

_____

_____

QUESTION FIVE

Solve the following equations

(a) 5y = 25

_____ (A)

(b) $3x$ +5 = 47

_____

_____ (M)

(c) $\frac{x}{10}$ + 9= 30

_____ (E)

_____

(d) $12w - 10 = 9w + 2$ (E)

_____

_____

_____

7

QUESTION SIX

The rock band "Manic "plays at Parties and Weddings.

To hire the band it costs $200 plus $50 an hour.

(a) Write an equation for the cost of hiring the band.

Using c = cost and h = hour

_____   (M)

(b) If Moana hired the band for 6 hours, how much did she pay?   (A)

_____

(c) Manic was paid $400 for playing at Cheng and Jiang's wedding. For how many hours did the band play?

(M)

_____

_____

QUESTION SEVEN

Hannah is two years older than her sister and five years older than her brother. The sum of the three children's ages is 50.

Write an equation using the information above. Then use the equation to find the age of all three children.

_____

_____

QUESTION EIGHT

List the next three terms in each of the following sequences.

(a) 2,5,8,11, _ , _ , _   (A)

(b) 1, 3, 7, 15, _ , _ , _   (M)
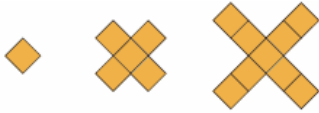
(c) 1, 4, 9, 16 _ , _ , _   (E)

QUESTION NINE

Matthew is painting a pattern on the fence at the Kindergarten using squares. Below are the first three parts of the pattern.
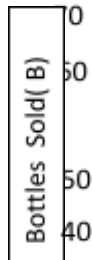
(a) Draw the fourth part of this pattern   (A)

(b) Complete the table below for the pattern   (M)

Pattern Part	1	2	3	4	5	6
Number of Squares	1	5				

Bottles Sold(B)
70
60
50
40

(c) Complete this equation for the pattern: (M)

S = Squares   P = Pattern Number

S =

(d) If 57 squares were used to make a part of the pattern, what part of the pattern was made?   (E)

_____

_____

QUESTION TEN

The school Health Committee has been monitoring the quantity of fizzy drink being sold each week last term. The results are recorded in the table: (A)

Week	Bottles Sold
1	28
2	34
3	40
4	46
5	52
6	58
7	64
8	70

a) Plot the data for fizzy drinks on the grid below.

1   2   3   4   5   6   7   8
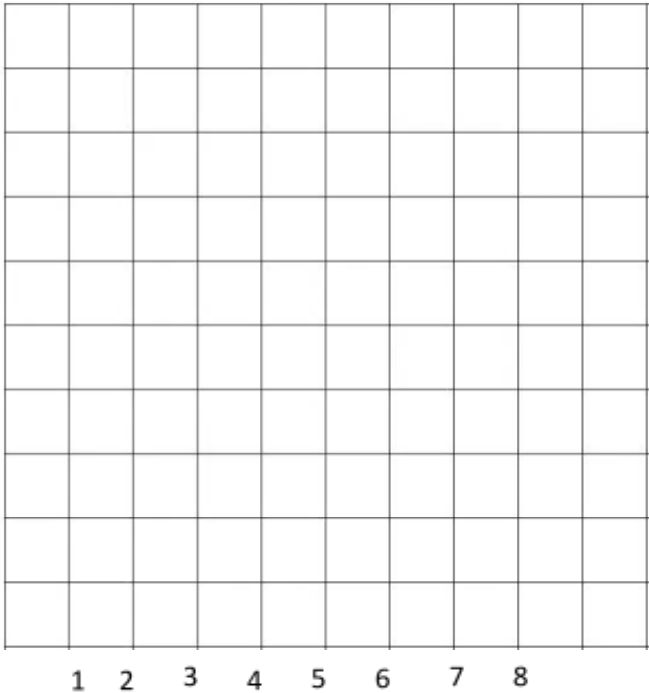
(b) Predict the number of bottles sold in week ten.

(M)

_____

(c) Write an equation for the graph above.   (E)

B = _____