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Student Personal Identification
Number (SPIN)

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TONGA GOVERNMENT
MINISTRY OF EDUCATION AND TRAINING

FORM 2 COMMON EXAMINATION
2015

MATHEMATICS

QUESTION AND ANSWER BOOKLET

Time Allowed: 2 Hours

INSTRUCTIONS

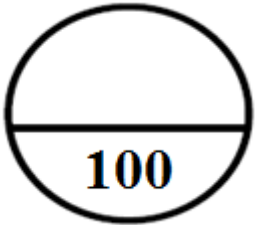
1. This examination has **THREE COMPULSORY SECTIONS**:

SECTION A:	MULTIPLE CHOICE	20 Marks
SECTION B:	SHORT ANSWERS	25 Marks
SECTION C:	LONG ANSWERS	55 Marks

2. All your answers must be written in the spaces provided for each question in this booklet. **SHOW ALL YOUR WORKING.**
3. You are **NOT** allowed to use a calculator.
4. Diagrams are not drawn to scale.
5. Before you begin to answer the questions, **WRITE YOUR Student Personal Identification Number** in the right – hand box at the top of the page, and on the inside of the back cover of this booklet.
6. Check that this booklet contains pages **2 - 23**.

YOU MUST HAND 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.

1. Identify the smallest in these fractions: $\frac{1}{2}, \frac{2}{3}, \frac{2}{5}, \frac{4}{7}$

- A. $\frac{1}{2}$
- B. $\frac{2}{3}$
- C. $\frac{2}{5}$
- D. $\frac{4}{7}$

2. Changing $0.45km$ to m is

- A. $4.5m$
- B. $45m$
- C. $450m$
- D. $4500m$

3. The highest common factor of 20 and 36 is:

- A. 2
- B. 4
- C. 6
- D. 9

4. Writing $10 \times 10 \times 10 \times 10 \times 10 \times 10$ in index form is:

- A. 10^6
- B. 6^{10}
- C. $1^{10 \times 6}$
- D. 10×10^6

5. Sione measured the length of different timbers: $20.4m$, $25.6m$, $31.1m$ and $34.9m$. The total length of all the timbers is:

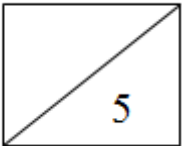
- A. $112.01m$
- B. $112.12m$
- C. $112.1m$
- D. $112m$

Student Personal Identification Number (SPIN)					

FORM 2 MATHEMATICS

For Markers Use Only

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



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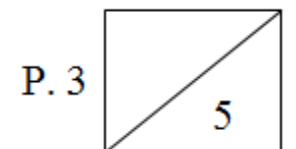
6. Saane bought some apples for \$15.50. How much change did she get from \$20
 - A. \$3.50
 - B. \$4.50
 - C. \$5.00
 - D. \$5.50

7. Samuela had \$756.75 in his bank account. The bank pay him interest amount of \$12.50 at the end of the month before he withdrew \$250 for shopping. How much money remains in his bank account?
 - A. \$1016.75
 - B. \$769.25
 - C. \$519.25
 - D. \$\$494.15

8. Tevita took out 6.55kg from a 15kg box of chicken. How many kilograms of chicken left in the box?
 - A. 8.85kg
 - B. 8.45kg
 - C. 9.75kg
 - D. 9.85kg

9. Malia spend $\frac{2}{5}$ of her money on food and $\frac{1}{5}$ on bus fare. What fraction of her money was not spend?
 - A. $\frac{1}{5}$
 - B. $\frac{2}{5}$
 - C. $\frac{3}{5}$
 - D. $\frac{4}{5}$

10. There are 5 identical bottles of water with a total weight of 8.80kg. How much does each bottle weigh?
 - A. 1.96kg
 - B. 1.86kg
 - C. 1.76kg
 - D. 1.66kg



11. Multiplying $8^3 \times 8^4$ is equal to:

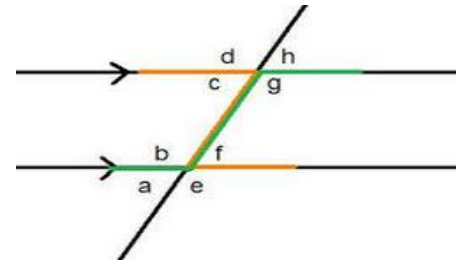
- A. 8^7
- B. 8^{12}
- C. 64^7
- D. 64^{12}

12. Sione's shop makes a 10% profit when selling a dozen of bread. If one dozen of bread cost \$7.20, what is her profit after selling eight (8) dozen of bread?

- A. \$5.67
- B. \$5.60
- C. \$5.76
- D. \$5.86

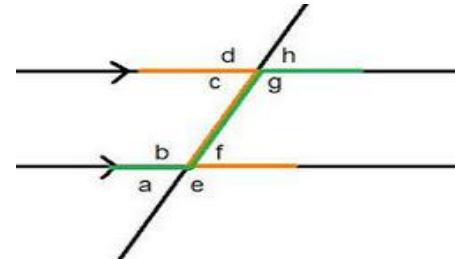
13. Angles **b** and **d** in the diagram are said to be:

- A. Alternate
- B. Corresponding
- C. Vertically Opposite
- D. Co – interior



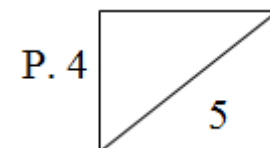
14. If angle **b** is 145° , what is the size of angle **h**?

- E. 55°
- F. 45°
- G. 145°
- H. 35°



15. The sum of the interior angles of a regular pentagon is:

- A. 180°
- B. 360°
- C. 540°
- D. 720°



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16. One square kilometre is equivalent to:

- A. 1 hectare
- B. 10 hectare
- C. 100 hectare
- D. 1000 hectare

17. The time in China is 5 hours behind the time in Tonga. What is the time in China if the time in Tonga is 0230 hours on a Tuesday?

- A. 2230 hours Monday night
- B. 2130 hours Monday night
- C. 2130 hours Tuesday night
- D. 2230 hours Tuesday night

18. How many days between 11 September and 25 January of the next year?

- A. 136 days
- B. 135 days
- C. 143 days
- D. 163 days

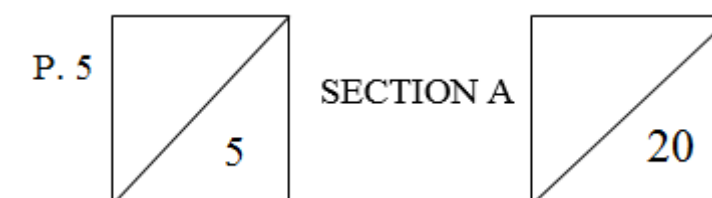
19. The number of dots in the next two patterns are:

- A. 14 and 20
- B. 15 and 20
- C. 14 and 21
- D. 15 and 21



20. The *median* of a set of numbers is:

- A. the average of the numbers
- B. the middle number
- C. the middle number after ranking
- D. the most occurring number



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

- (1 Mark)

- (2 Marks)

i. $-5 \square -2$

ii. $0.4 \times \frac{2}{5}$

- (1 Mark)

a)
$$\begin{array}{r} 372 \\ 4256 \\ + 2014 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 69.54 \\ -12.76 \\ \hline \end{array}$$

c) $\frac{4}{6} - \frac{1}{3} =$

P. 6



6

- i. an ace? _____

- ii. a picture card? _____

- 26, 35, 32, 45, 29, 44, 38, 47, 27, 44, 52, 28, 46, 44, 47, 37, 25, 40, 51, 38.

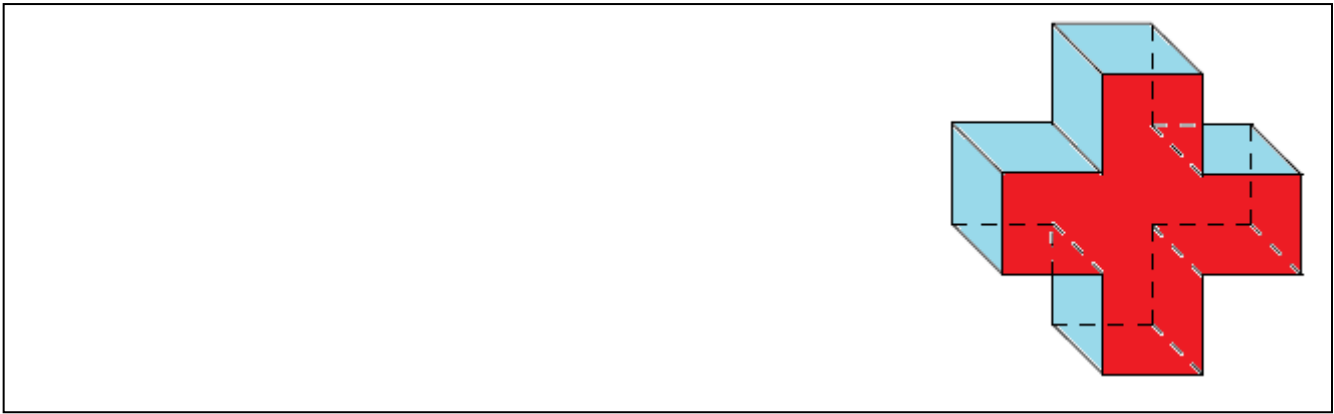
(3 Marks)

QUESTION FIVE

a) Mele says, “If two rectangles have the same perimeter, they must have the same area.”

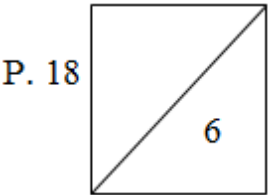
Explain Mele’s claim whether she is correct or not correct. (2 Marks)

b) A red cross is covered by a light blue coloured paint on its sides. The cross is made up of 5 cubes of lengths 4cm. Calculate the **total area** covered with the light blue colour except the red cross at the front and the rear side. (2 Marks)



c) A bag of marbles contains 8 red, 6 blue and 10 green. Sione wants to take out a marble and give it to his friend. What is the probability that the marble Sione will pick is (2 Marks)

- i. blue?
- ii. white?



d)

123.45

× 2.6

(2 Mark)

e)

15

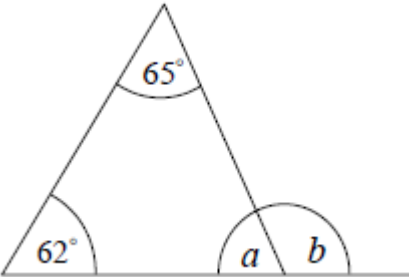
630

(2 Marks)

4. The table below is part of Silia’s shopping. Complete the table and find the **total amount** spent. (4 Marks)

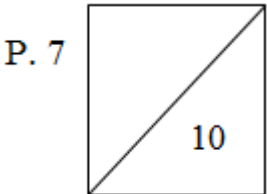
Items	Cost Price	Total
3 kg Sugar	\$1.70 per kilo	
5 kg Flour	\$1.90 per kilo	
Breakfast Crackers		\$7 for 3
	TOTAL	

5. Use the angle rules to find the angles *a* and *b*.



Angle a = (1 Mark)

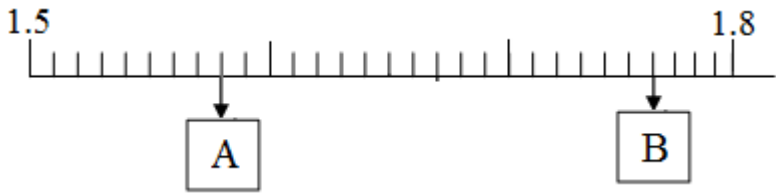
Angle b = (1 Mark)



6. Complete the table below: (2 Marks)

Polygon's Name	Number of sides	Sum of the interior angles
Rectangle	4	360°
Pentagon	5	
	8	1080°

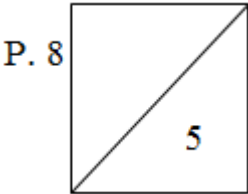
7. Write the numbers labelled **A** and **B** in this ruler:



A = _____ (2 Marks)
B = _____

8. Write an expression for the following:

i. The sum of 4, x and y . (1 Mark)

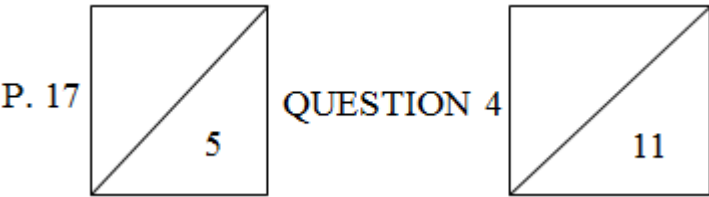


c) Solve this equation by reversing the order of operation. (2 Marks)

$8(x + 12) = 100$

d) Sela halved a number, and subtracted 4. Her answer was 15.

What was the number that she began with? (3 Marks)

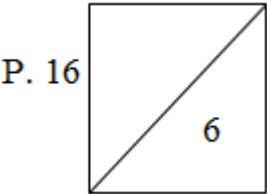
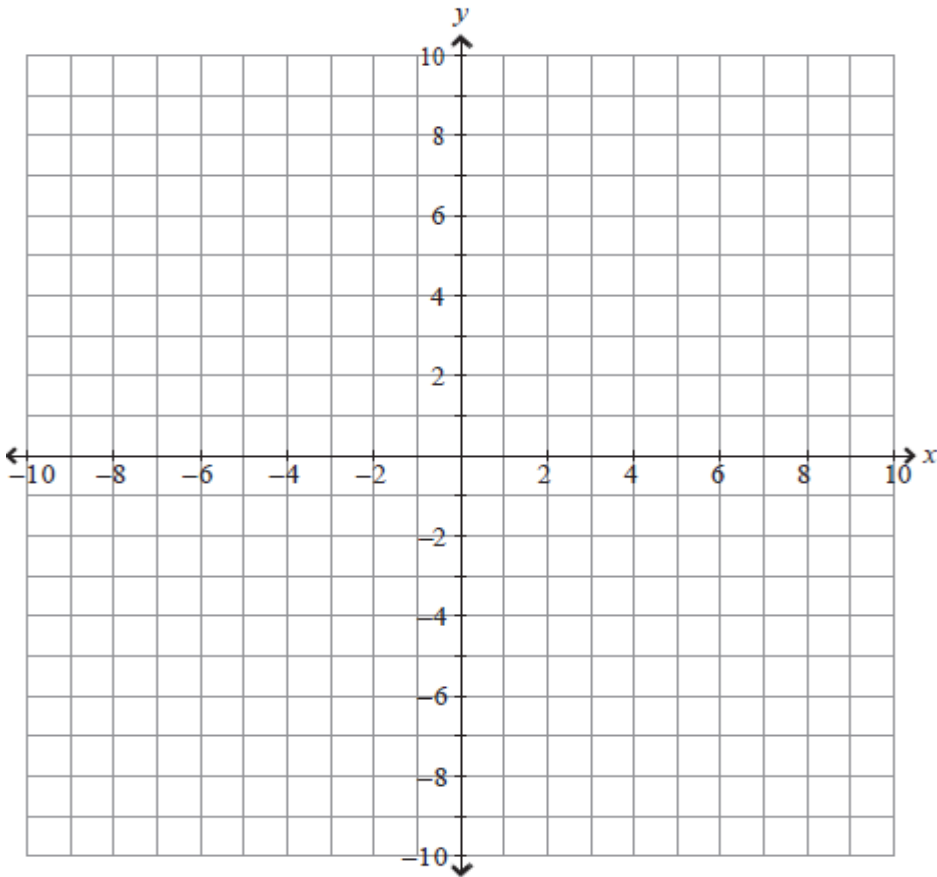


QUESTION FOUR

a) Complete the table of ordered pairs for $y = 2x + 2$. (3 Marks)

$y = 2x + 2$	0	1	2	3	4	5

b) Use the ordered pairs in your table above to plot the graph of $y = 2x + 2$. (3 Marks)

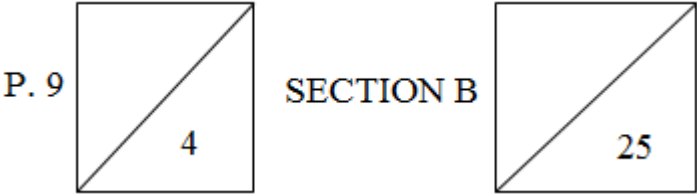


9. Use the Distributive Law to expand $x(y + 4z)$ (2 Marks)

10. Sela is a netball player. The number of goals she scored in her first seven games was 3, 4, 5, 5, 6, 8, 9.

i. Explain why the mode is 5. (1 Mark)

ii. Find the range. (1 Mark)



SECTION C: LONG ANSWERS (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.

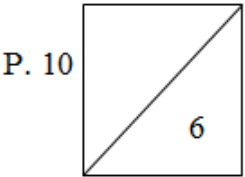
Each question is worth 11 marks.

QUESTION ONE

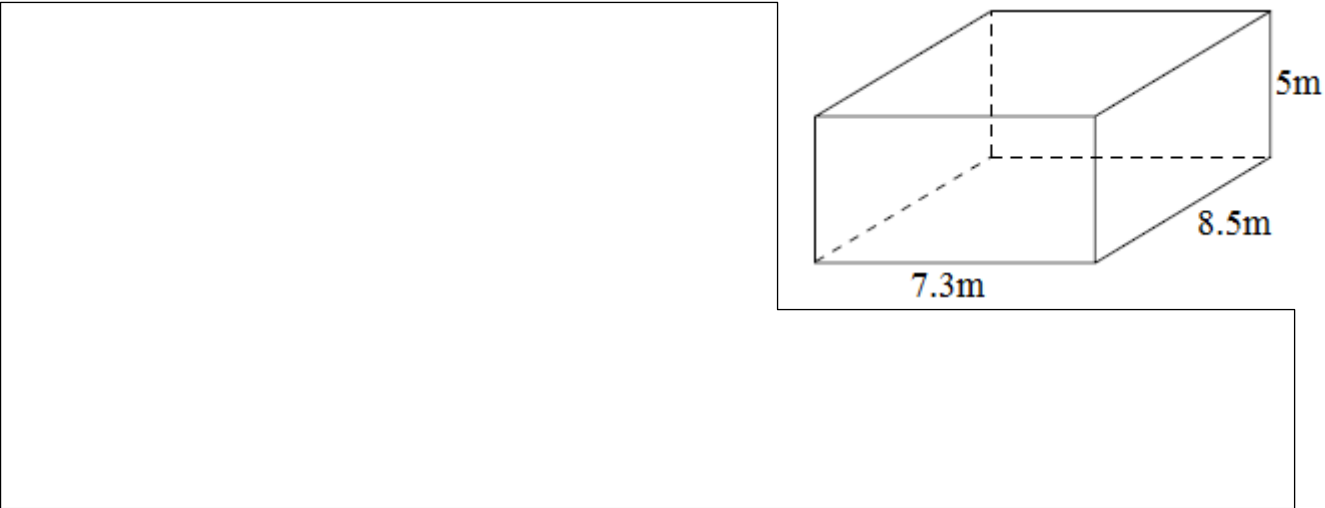
a) Evaluate $\sqrt{225}$. (1 Mark)

b) Find all the prime factors of 258. (3 Marks)

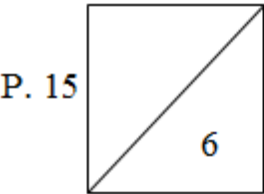
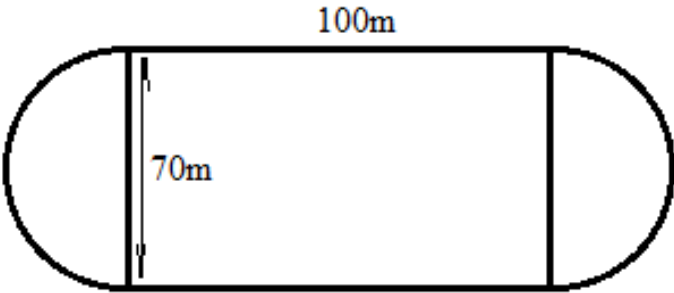
c) Write 200538 in the expanded forms using **index notation** (powers of ten). (2 Marks)



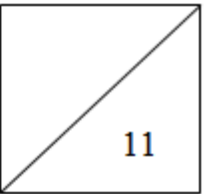
d) Calculate the **volume** of the prism below. (2 Marks)



e) The diagram below shows a sports track. The track is formed by a rectangular shape with two half circles added to both ends. Calculate the **total area** covered in this sports track. (4 Marks)



QUESTION 3



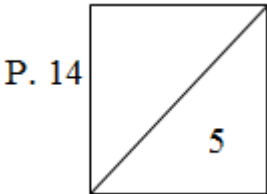
QUESTION THREE

a) Construct an angle of 60° at A. (2 Marks)

A _____

b) Draw the shapes of two similar triangles which are not congruent. (2 Marks)

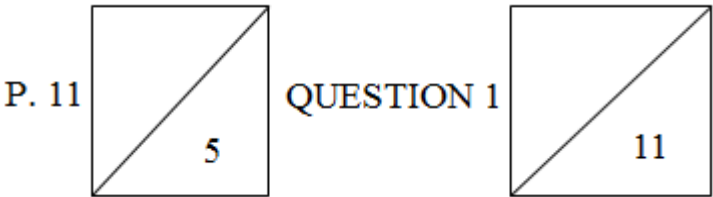
c) Draw the shapes of two circles which are similar and congruent. (1 Mark)



d) Calculate 1 + 2 + + 100. (**Hint:** *You may use Gauss method taught in class*) (2 Marks)

e) Complete the table below. (3 Marks)

ITEMS	COST PRICE	10%	SELLING PRICE
Table set	\$450.00	\$45.00	\$495.00
Flat TV Screen		\$95.00	\$1045.00
Microwave	\$325.00		\$357.50
Freezer	\$758.00	\$75.80	



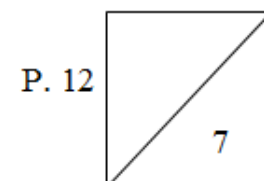
QUESTION TWO

- a) Kulisi receives a *fortnightly* salary of \$625.37. How much does he receive in a year? (2 Marks)

- b) Lisa can type 120 words in a minute.

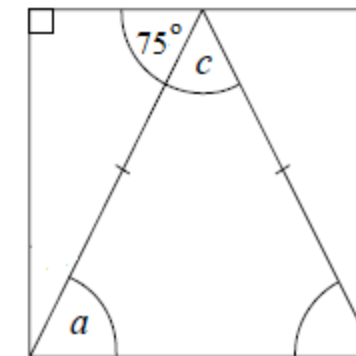
- i. Calculate how many words she can type in 10 seconds. (2 Marks)

- ii. Calculate how long (*in minutes and seconds*) it will take for Lisa to type 1000 words. (3 Marks)



- c) Paula's saving account has a balance of \$5250.00. He withdrew 25% of his saving for an emergency family function. Calculate his remaining balance. (2 Marks)

- d) Find the missing angles labelled *a* and *c* in the diagram below. (2 Marks)



a = _____

c = _____

