02

Centre Number	Candidate Number

MINISTRY OF EDUCATION AND HUMAN RESOURCE DEVELOPMENT

SOLOMON ISLANDS YEAR 9 EXAMINATION

2022

MATHEMATICS

QUESTION AND ANSWER BOOKLET

WEDNESDAY 16TH NOVEMBER 9:00AM

TIME: 1 HOUR 30 MINUTES
Plus 10 MINS. READING TIME

SECTION	CONTENT	MARKS
A	Multiple Choice Questions	15
B	Short Answer Questions	40
C	Long Answer Questions	20
	Total	**75**

INSTRUCTIONS TO CANDIDATES

1. Do not open this booklet until you are told to do so.
2. Write both your Centre Number and Candidate Number in the box provided at the top right hand corner of this page and at the end of this booklet.
3. Before you answer the questions, read through the instructions carefully.
4. Write all your best answers to Section A in the boxes provided at the end of this booklet.
5. Write your answers to Sections B and C in the spaces provided in this Booklet.
6. Show all your workings for Section B and C. You may lose some marks if you do NOT show your working.
7. Calculators should NOT be used.
8. Do NOT use correction fluid.
9. Mobile phones are NOT allowed in the Examination room.

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

THIS BOOKLET SHOULD CONTAIN 17 NUMBERED PAGES

SECTION A: MULTIPLE CHOICE (15 MARKS)

WRITE THE LETTER OF THE MOST CORRECT ANSWER IN THE BOX PROVIDED IN THE BACK FLAP AT THE END OF THIS BOOKLET.

1. Which of the calculations below is correct to find how many grams is equivalent to 2.5kg?

   A. 2.5 x 1 000
   B. 2.5 ÷ 1 000
   C. 1 000 x 2.5 ÷ 1 000
   D. 1 000 ÷ 2.5 x 1 000

2. The simplified form of $\frac{6a^2b+12a^2b}{6b}$ is:

   A. 3
   B. $3a$
   C. $3a^2$
   D. $3a^4$

3. The standard form number $\mathbf{1.02 \times 10^2}$ written as in ordinary number form will be equal to;

   A. 1.02
   B. 10.2
   C. 102
   D. $1\ 020$

4. The ratio of water to orange flavour is 1.5 : 1. If there is 3 litres of water, the packets of flavor needed is:

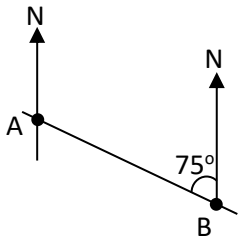
   A. 1
   B. 2
   C. 3
   D. 4

5. The value of k in this expression $\frac{6}{9} = \frac{4}{k}$ is:

A. 2
B. 3
C. 5
D. 6

6. The bearing of Point A from point B in the given diagram is:

A. 075°
B. 105°
C. 255°
D. 285°



7. What is the value of k in the equation $k + 2 = 5 - 2k$?

A. -1
B. 1
C. -3
D. 3

8. Specials on mother's day, DJ Graphic was selling dresses costing $120 at 30% discount each. The **discounted amount** is:

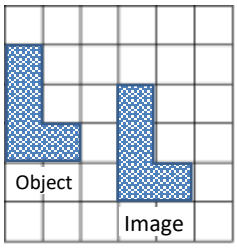
A. $12
B. $30
C. $36
D. $84

9. Kalo borrowed $15 000 from BSP bank at a rate of 15% interest per annum. The interest amount to be paid in 1 year is:

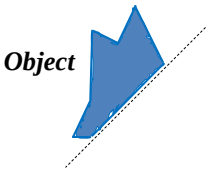
A. $1 250
B. $2 200
C. $2 250
D. $2 500

10. The type of **transformation** in the given figure is a:

A. rotation
B. reflection
C. translation
D. enlargement



11. The given object is reflected about the mirror (dotted) line.



Which of the images below reflects the <u>correct position</u> of the object above?

A. 

C. 

B. 

D. 

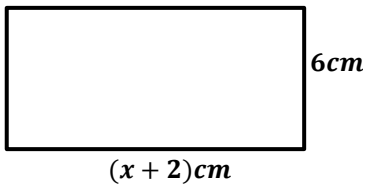
12. Given the area of a circle is $12.4m^2$. If $\pi = 3.1$, the radius of this circle is:

A. $2m$
B. $2m^2$
C. $4m$
D. $4m^2$

13. The expression $\frac{1}{3}\boldsymbol{x^2y} - \frac{1}{3}\boldsymbol{xy^2}$ when fully factorized is equal to:

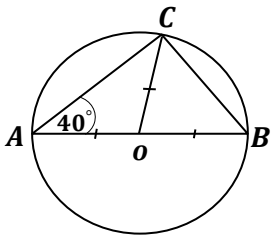
A. $\frac{1}{3}xy(x - y)$
B. $\frac{1}{3}(x^2y - xy^2)$
C. $xy(\frac{1}{3}x - \frac{1}{3}y)$
D. $\frac{1}{3}xy(xy - \frac{1}{3}xy)$

14. Which of the statements below shows the <u>correct calculation</u> to find the **area** of the given rectangle?



A. $Area = (x + 2)cm + 6cm$
B. $Area = (x + 2)cm \times 6cm$
C. $Area = (x \times 2)cm \times 6cm$
D. $Area = (x + 2)cm + 6cm + (x + 2)cm + 6cm$

15. Triangle ABC is a right-angled triangle in a semicircle. Which statement about angles is NOT <u>true</u>?



A. $\angle AOC = 40^o$
B. $\angle BCO = 50^o$
C. $\angle COB = 80^o$
D. $\angle ACB = 90^o$

Total marks for Section A **20**

SECTION B: SHORT ANSWERS QUESTIONS (40 MARKS)

SHOW YOUR WORKING AND WRITE YOUR ANSWERS IN THE SPACES PROVIDED. ALL QUESTIONS ARE WORTH 2 MARKS EACH.

16. If $1cm^3 = 1ml$, calculate how many **cubic centimeter** ($\boldsymbol{cm^3}$) is equal to a 1.5 *litres* bottle mineral water?

1.5 $litres$

1.5 $litres$ = _____

2 marks

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17. Use the index laws to simplify $(8.0 \times 10^2) \div (4.0 \times 10^{-2})$. Giving your answer in **standard form**.

$(8.0 \times 10^2) \div (4.0 \times 10^{-2})$ = _____

2 marks

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18. Simplify $\frac{(2m^3n^2)^3}{4m^2n^2}$ to its lowest term.

$\frac{(2m^3n^2)^3}{4m^2n^2}$ = _____

2 marks

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19. Evaluate 23^2 using the standard form method. (if $2.3^2 = 5.29$)

23^2 = _____

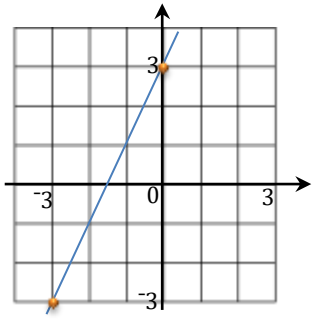
2 marks

20. 4 people can eat a 20kg bag of rice in two weeks. How many days would the same 20kg bag last if there are 7 people?

Number of days = _____

2 marks

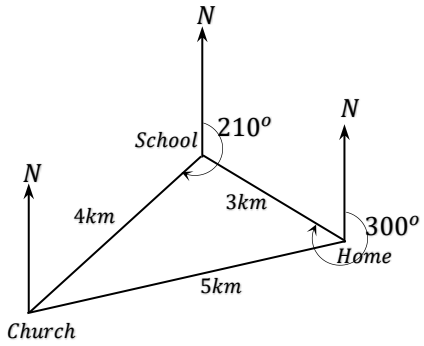
21. A straight line graph passes through points (0,3) and (-3,-3). Calculate for the **gradient**.



Gradient = _____

2 marks

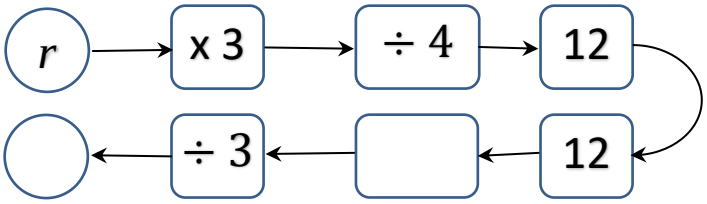
22. Tinoe walked to school at a bearing of 300° for 3km. After school he walked 4km to church from school at a bearing of 210° before going home 5km from the church. Calculate the bearing of the school from the church.
Given below is the sketch showing Tinoe's journey.



Bearing = _____

2 marks

23. Solve $\frac{3r}{4} = 12$ to find the value of ***r***, by using the flow diagram given. Write your answers in the empty shapes.



24. A parcel delivery service charges according to the formula: $c = \frac{w}{5} + 15$
(Where c is the cost in dollars ($) and w is the weight of parcel in kilograms (kg)

What is the <u>charge</u> for delivering a parcel that weights $14kg$?

Charge = _____

2 marks

25. Simplify \$36 to \$54 in its simplest ratio form.

Ratio = _____

2 marks

26. A bank charges 15% p.a. interest on loans. How much interest should be paid after 2 years for a \$800 loan?

Interest = _____

2 marks

27. A bicycle costs \$750. If the markup is 10%, what is the selling price?

Selling price = _____

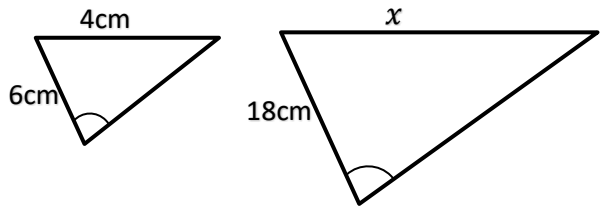
2 marks

28. A second-hand book was bought and sold for $9.90. If the discount on the cost price was 10%, what was the **cost price** of the book?

Cost price = _____

2 marks

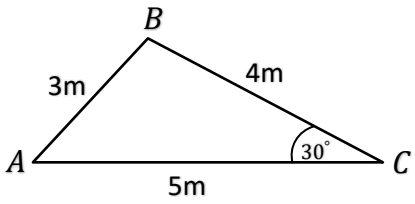
29. Find the value of $\boldsymbol{x}$ if the following triangles are similar



$\boldsymbol{x}$ = _____

2 marks

30. Use **sine rule** ($A = \frac{1}{2} \times a \times b \times sinC$) to find the area of the given triangle. Given sides '***a'*** is 4m, ***'b'*** is 5m, '***c'*** is 3m and angle at C is 30°. (sin 30° = 0.5, cos 30° = 0.9, tan 30° = 0.6).



$Area$ = _____

2 marks

31. Calculate the area of a sector given the radii of the circle is 30m and the angle subtended at the centre is 12°. (***Use*** $\boldsymbol{\pi = 3.1}$).

$Area\ of\ sector$ = _____

2 marks

32. Evaluate $ax(2x - 3a)$ when $a = 3$, and $x = 4$.

$ax(2x - 3a)$ = _____

2 marks

33. Factorise and simplify $\frac{18xy+27x^2y^3}{9xy}$

$\frac{18xy+27x^2y^3}{9xy}$ = _____

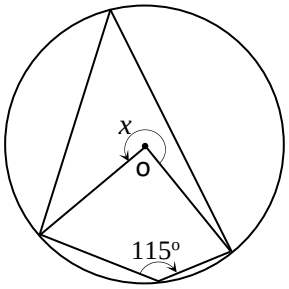
2 marks

34. Solve for $\boldsymbol{x}$ in the equation $2(x-4)=12$.

$2(x-4)=12$ = _____

2 marks

35. If ***O*** is the centre of the circle, find angle ***x***.



$Angle\ \boldsymbol{x}=$ _____

2 marks

Total marks for Section B: **40**

SECTION C: LONG ANSWER QUESTIONS (20 MARKS)

SHOW YOUR WORKING AND WRITE YOUR ANSWERS IN THE SPACES PROVIDED. THE MARKS ALLOCATED ARE WRITTEN BESIDE EACH QUESTION.

36. Simplify the following expressions, writing the answers with positive powers.

(a) $(8m^3)^{\frac{1}{3}}$

$(8m^3)^{\frac{1}{3}}$ = _____

2 marks

(b) $(81)^{-\frac{1}{2}}$

$(81)^{-\frac{1}{2}}$ = _____

2 marks

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37. The wages bill for 10 men is \$1 000. What would be the wage bill for 30 men paid at the same rate?

Wages = _____

4 marks

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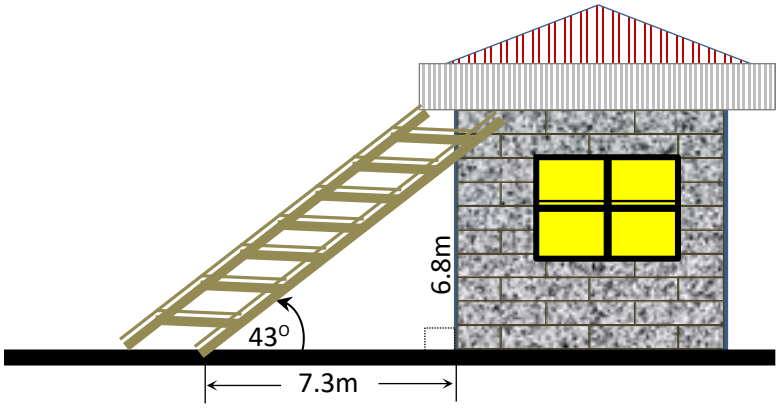
38. A ladder leaning against the wall of a building reaches 6.8*m* up from the bottom of the wall. If the base of the ladder is 7.3*m* from the bottom of the building:



$\sin 43^{O} = 0.682$
$\cos 43^{O} = 0.731$
$\tan 43^{O} = 0.933$

a) Use the given trig ratios to write an equation for finding the length (l) of the ladder.

Equation = _____
(2 marks)

b) Find the length (l) of the ladder correct to the nearest metre.

Length of ladder = _____ m
(2 marks)

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39. The product of a number and 14 add 7 is equal to that number subtracting 45.

(a) Write an equation for the statement.

Equation = _____

2 marks

(b) Solve for the unknown number.

Unknown number = _____

2 marks

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40. The data set below shows number of children in each of the families of Year 9 learners.

No. of Children	**Frequency**
1	4
2	10
3	6
4	3
5	2
Total	25

From the data given in the frequency table above, calculate the;

(a) Mode

Mode = _____

1 mark

(b) Range

Range = _____

1 mark

(c) Median

Median = _____

2 marks

Total marks for Section C: 20

The End

SIY9 - MATHEMATICS 2022

CENTRE NUMBER			CANDIDATE NUMBER				

ANSWER SHEET- MULTIPLE CHOICE

You are to write the letter of the correct answer. Make sure your answer is put alongside the right question number.

1		11	
2		12	
3		13	
4		14	
5		15	
6			
7			
8			
9			
10			

FOR MARKER AND CHECKER USE ONLY

SECTIONS	MARKS	MARKER	CHECKER
A	15		
B	40		
C	20		
TOTAL	**75**		
Marker/Checker Initials			