02

Centre Number	Candidate Number

MINISTRY OF EDUCATION AND HUMAN RESOURCE DEVELOPMENT

SOLOMON ISLANDS YEAR 9 EXAMINATION

2021

MATHEMATICS

WEDNESDAY 3rd NOVEMBER 9.00AM **TIME: 2 HOURS plus 10 minutes reading time**

SECTION	CONTENT	MARK
A	Multiple Choice Questions	20
B	Short Answer Questions	40
C	Long Answer Questions	40
	TOTAL	**100**

INSTRUCTIONS TO CANDIDATE

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 Sections 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 23 NUMBERED PAGES.

SECTION A: MULTIPLE CHOICE 20 MARKS

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

1. Change 25.79 litres (l) to millilitre (ml).

   A. 2 579 ml
   B. 25 790 ml
   C. 257 900 ml
   D. 2 579 000 ml

2. The product of $4x^3 \times x^4$ is equal to:

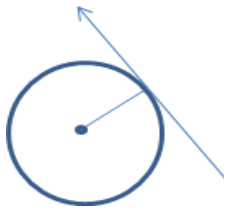
   A. x^7
   B. $3x^7$
   C. $4x^7$
   D. $7x^7$

3. $4b^3 \times 6b^6 \div 2b^5$ is equal to:

   A. $3b^1$
   B. $12b^{-4}$
   C. $12b^4$
   D. $24b^9$

4. The tangent line at the circumference of the circle that meets the radius is:

   A. Congruent
   B. Perpendicular
   C. Supplementary
   D. Complementary



5. 0.0037423 when written in standard form notation is:

A. 3.7423×10^{-2}
B. 3.7423×10^{-3}
C. 3.7423×10^{-5}
D. 3.7423×10^{-7}

6. The ratio 8 : 36 written in its **simplest form** is equal to:

A. 2 : 9
B. 9 : 2
C. 4 : 18
D. 18 : 4

7. The square root of 127 is between:

A. 8 and 9
B. 9 and 10
C. 10 and 11
D. 11 and 12

8. If $\frac{x}{5} = \frac{12}{15}$ represents direct proportion then $x =$

A. 3
B. 4
C. 60
D. 75

9. $\left(\frac{3}{5}\right)^{-3}$ Equals to:

A. $\frac{27}{125}$
B. $\frac{27}{5}$
C. $\frac{3}{125}$
D. $\frac{125}{27}$

10. The equivalent ratio of 2 : 3 : 7 is:

A. 6 : 9 : 27
B. 14 : 21: 49
C. 12 : 36 : 27
D. 10 : 30 : 270

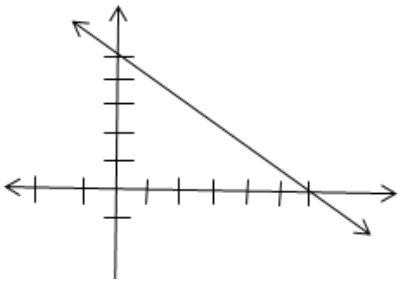
11. The equation of the graph below is:

A. $y = \frac{5}{6}x + 5$

B. $y = -\frac{5}{6}x + 5$

C. $y = \frac{6}{5}x + 5$

D. $y = -\frac{6}{5}x + 5$



12. If it takes 2 months for 6 carpenters to build a house. How many months can 12 carpenters finish the same house at the same rate?

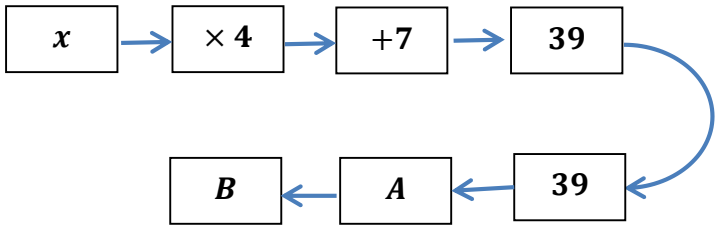
A. 1 month
B. 3 months
C. 4 months
D. 6 months

13. Two villages are 3.78 cm apart on a map. If the scale of the map is 1:500 000, then, the actual distance between the two villages is:

A. 1.89 km
B. 18.9 km
C. 189 km
D. 1 890 km

14. The operations missing in the boxes represented by A and B below are:

A. +7 and × 4
B. +7 and ÷ 4
C. – 7 and × 4
D. – 7 and ÷ 4



15. Kori, Pati and Gala share the profit from their canteen in the ratio of **2:3:4**. If the profit is $630.00, how much money will Gala receive?

A. $70.00
B. $140.00
C. $210.00
D. $280.00

16. 12.5 % changed to decimal is equal to:

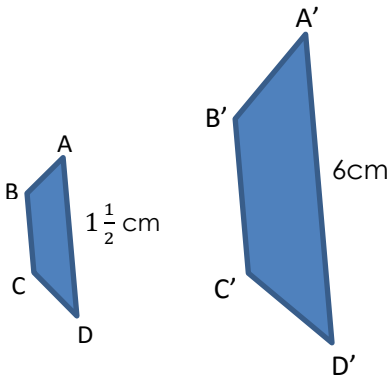
A. 1.25
B. 0.125
C. 0.0125
D. 0.00125

17. The value of x in the equation $6x - 9 = -63$ is:

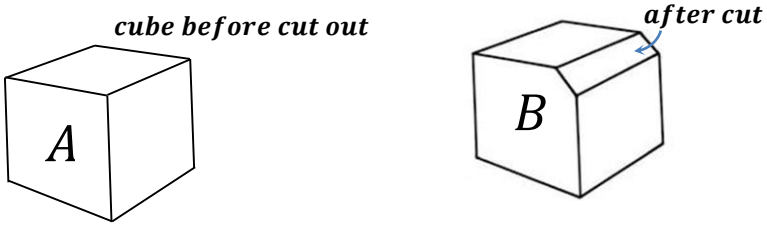
A. 54
B. -54
C. -9
D. 9

18. AB = $1\frac{1}{2}$ cm and A'B' = 6cm as shown below. The scale factor of enlargement is:

A. 2
B. 4
C. 5
D. 9



Study the cubes A and B carefully to answer question 19.



19. The part that is cut out of the cube is called a;

    A. parallelogram
    B. square pyramid
    C. triangular prism
    D. triangular pyramid

20. The scores awarded to 10 students in a Maths quiz are shown below:

    3, 3, 3, 7, 7, 8, 9, 4, 5, 5

    The mode and the median are:

    A. 3 and 5
    B. 3 and 7.5
    C. 5 and 5
    D. 5 and 5.4

Total marks for Section A: 20

SECTION B: SHORT ANSWER QUESTIONS 40 MARKS

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

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21. Simplify $\frac{3t^4 \times 18t^2}{2t^3}$

(2 marks)

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22. Change the ordinary number 5 691 000 to standard form:

(2 marks)

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23. Workout the answer for $8^{\frac{1}{3}} \times 49^{\frac{1}{2}}$

(2 marks)

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24. Simplify the ratio $2\frac{1}{5} : 1\frac{2}{5} : \frac{1}{5}$

(2 marks)

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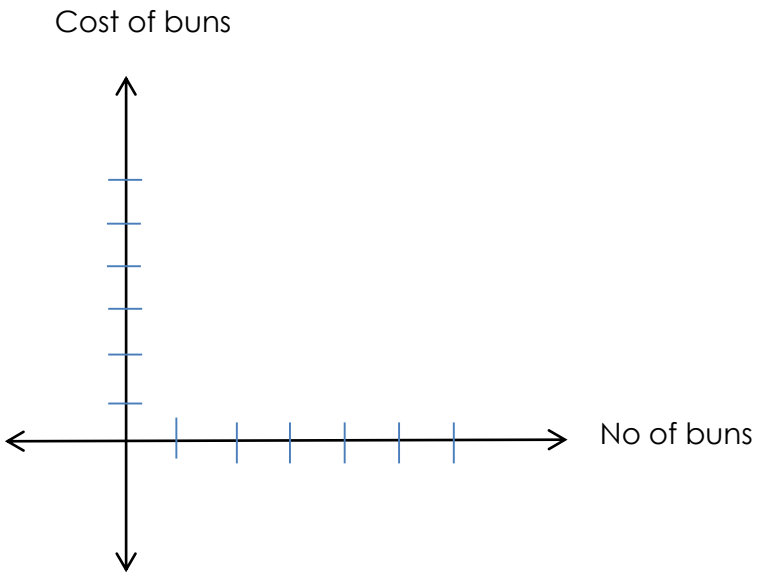
25. Pati and Boka share 45 coconuts in a ratio of 2 : 3. How many coconuts did Pati receive?

(2 marks)

26. Jane sells a bun at $2 each. Draw a graph showing the cost of 2 buns and 5 buns



(2 marks)

27. It takes 8 minutes for a truck traveling at a speed of 60 km/h to cover a distance of 8 km. How long will it take to travel at 80 km/h to cover the same distance?

(2 marks)

28. Write the ratio \$1.50 : \$2.25 : \$7.50 in its **simplest form.**

(2 marks)

29. Pita bought a mobile phone at \$320.00. He sold it to a friend at \$300.00. Calculate the discount in percentage.

(2 marks)

30. Mr. Smith bought a soccer ball at \$125.00. He sold it at 20% mark up. Calculate the selling price.

(2 marks)

31. Solve for $\boldsymbol{x}$ in the equation $10x - 20 = 3x + 15$

(2 marks)

32. Mary and Ken have 63 coconuts altogether. If Mary has 8 times as many coconuts as Ken, how many coconuts will Ken have?

(2 marks)

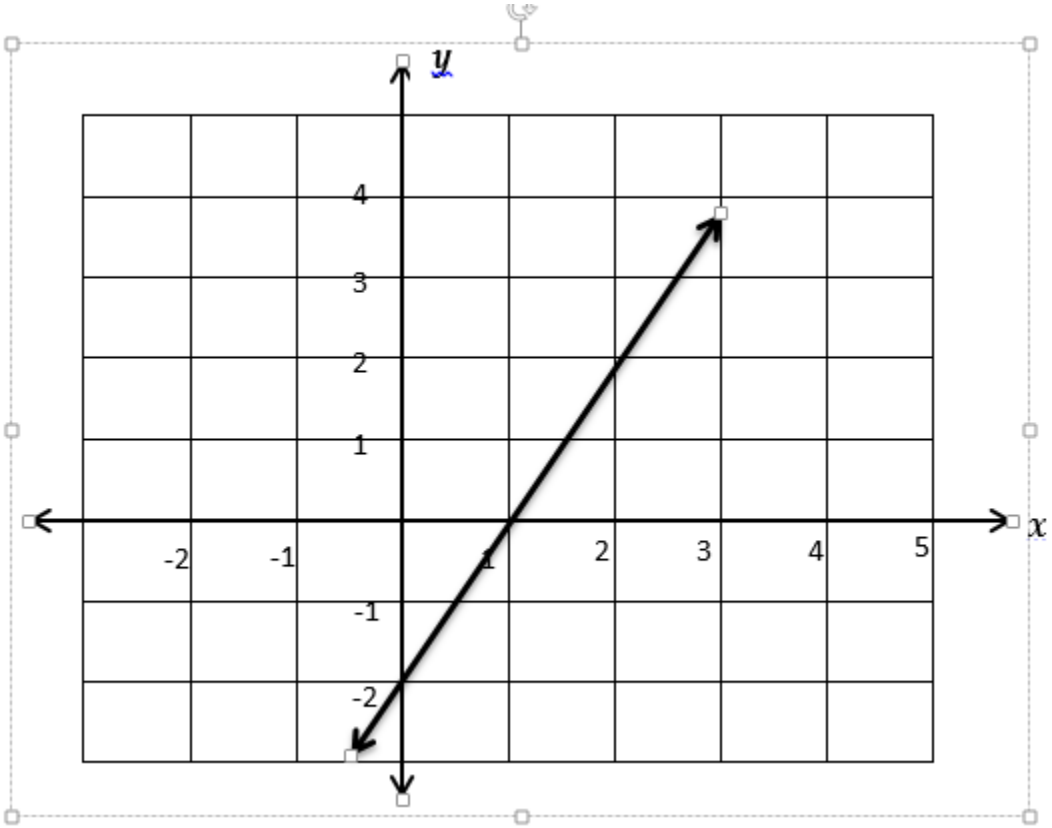
33. Expand $3xy(2x^2 + 4xy^2 - 5)$

(2 marks)

34. Factorize $4a^4b^2 + 6a^3b^5 + 2a^2b^2$

(2 marks)

35. Study the graph to answer questions **a** and **b** that follow.



a. Calculate the gradient

1 mark

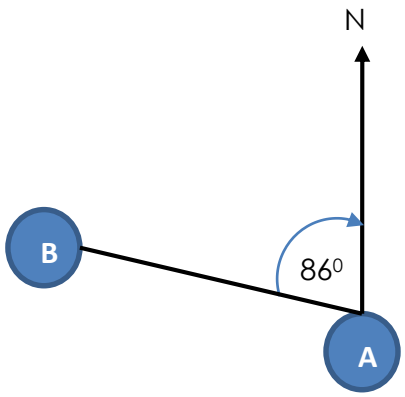
b. Write the equation of the graph

1 mark

36. Calculate Tom's average speed if he runs a distance of 12 km in 1 hour 30 minutes.

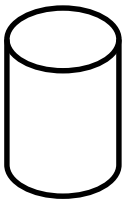
(2 marks)

37. Calculate the bearing from Point **A** to Point **B**



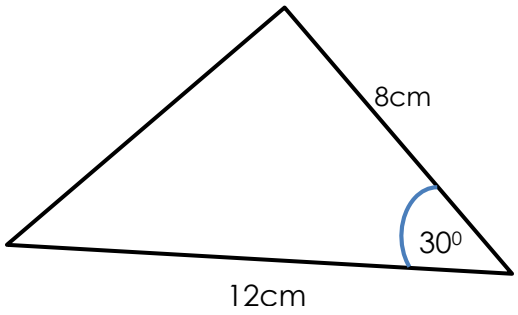
(2 marks)

38. Draw the net of the cylinder.



(2 marks)

39. Calculate the area of the triangle below using the sine rule. **Sine 30^0 = 0.5**



(2 marks)

40. The frequency table below shows the number of students absent from maths periods in a week. Calculate the mean of the data set.

Days	Number of students absent
Monday	2
Tuesday	1
Wednesday	3
Thursday	4
Friday	2

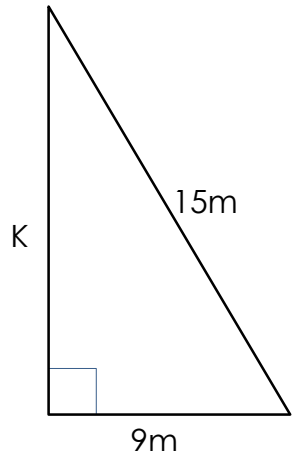
(2 marks)

Total marks for Section B: 40

SECTION C: LONG ANSWER QUESTIONS 40 MARKS

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

41. Study the triangle below and answer questions **a** and **b**:



a. Use Pythagoras theorem to calculate the missing length marked ***k***.

2 marks

b. Calculate the area of the triangle.

2 marks

42. Mike wants to make purple paint, he needs to mix red, yellow and blue paint in the ratio 2 : 3 : 4.

a. If he has 27 ml of yellow paint, how much red paint will he need to make purple paint?

2 marks

b. How much blue paint will he need to make purple paint?

2 marks

43. Maka borrowed $40 000 from BSP bank to buy himself a new car.

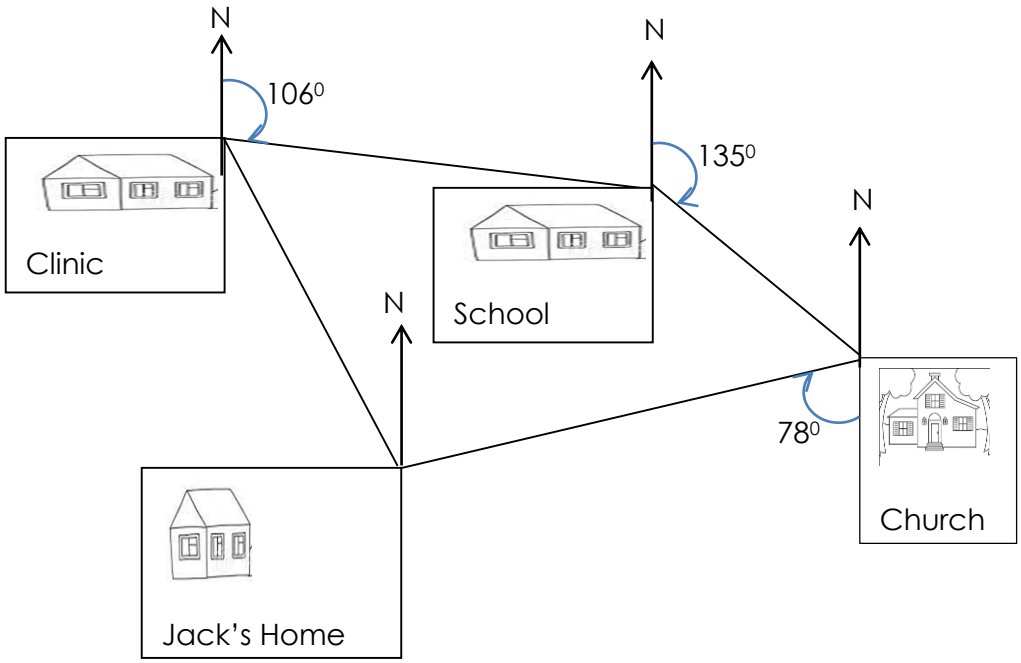
a. The bank charged him 10% interest per year. Calculate how much interest he will pay BSP after 5 years.

3 marks

b. What is the total amount he needs to pay BSP bank including the interest?

1 mark

44. The map below shows the journey Jack travelling from his village to the clinic.



a. What is the bearing from the church to the school?

1 mark

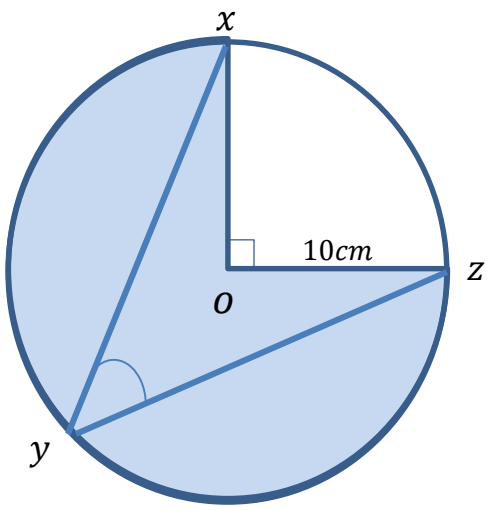
b. What is the bearing from the school to the clinic?

2 marks

c. What is the bearing from the church to Jack's home?

1 mark

45. Study the circle with the centre o and xyz are points on the circumference.



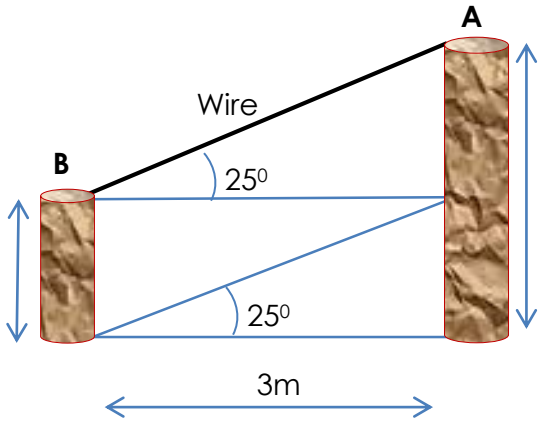
a. Calculate the area of the shaded sector given the angle 90^0 and radius of 10 cm.

3 marks

b. What is the size of angle $\angle xyz$.

$\angle xyz$ =_____ 1 mark

46. The picture below shows two posts in a fence held by a piece of wire to the top of posts **A** and **B**. The distance between the posts is 3 m.



Sin 25⁰ = 0.4
Tan 25⁰ = 0.5
Cos 25⁰ = 0.9

a. Calculate the height of post **B.**

2 marks

b. Calculate the length of the wire joining posts **A** and **B**.

2 marks

47. Below are the time taken in minutes by 30 teachers traveling to their schools every morning. Use the given data to answer questions **a** and **b**:

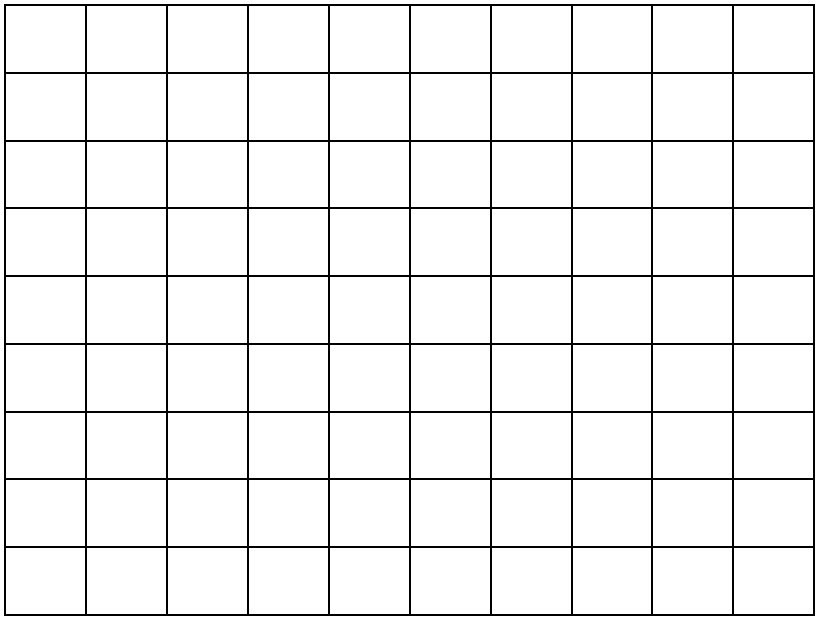
13,	30,	21,	16,	13,	13,	16,	16,	30,	21,
30,	16,	16,	16,	21,	30,	16,	21,	13,	16,
16,	21,	30,	13,	30,	16,	30	13,	16,	30

a. Represent the data in a frequency tally table below.

Score (Time taken)	Tally	Frequency
13		
16		
21		
30		

2 marks

b. In the grid below, draw a line graph for the data.



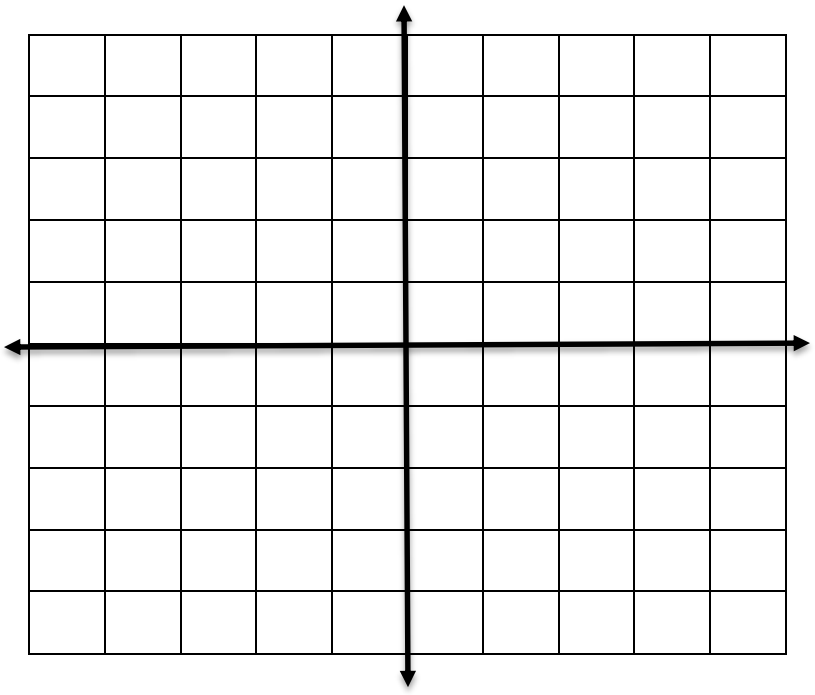
2 marks

48. Given the straight line equation $4x - 8y - 32 = 8$.

a. Write the above equation into the form " $y = mx + c$ " **or** " $y = mx - c$":

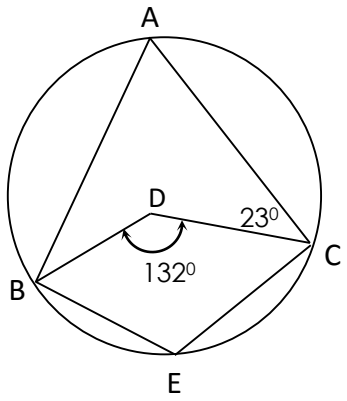
2 marks

b. Sketch the graph of the **straight line equation** obtain in question '*a'* above.



2 marks

49. Below is a circle with D in the centre and points A, B, C, E on the circumference. Angle $\angle$ BDC is 132^0 angle $\angle$ CDA is 23^0.



a. Calculate the size of angle $\angle$ BEC.

2 marks

b. Calculate the size of angle $\angle$ ABD.

2 marks

50. The formula to calculate the perimeter of a rectangle is: $P = 2(l + w)$, where l is the length and w is the width of the rectangle.

a. Rearrange the formula to make l the subject.

2 marks

b. Find the value of l if P = 16 and w = 3

2 marks

Total marks for Section C: 40

SIY9 - MATHEMATICS 2021

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		16	
7		17	
8		18	
9		19	
10		20	

FOR MARKER AND CHECKER USE ONLY

SECTION	MARKS	MARKER	CHECKER
A	20		
B	40		
C	40		
TOTAL	100		
Marker/Checker Initials			