SECTION A: ATTEMPT ALL QUESTIONS

(55marks)

1. In the equation $ax^2 + bx + c = 0$, the value of a must not be equal to..... **(2marks)**

2. What is the slope of $3y - 6x = 12$ Circle the correct answer **(3marks)**

   A. 3
   B. −6
   C. 2
   D. 6

3. Solve the simultaneous equation $\begin{cases} 0.5x + 0.2y = 1.4 \\ 0.3x + 0.4y = 1.8 \end{cases}$ circle the correct answer

   A. {(1.43,3)}
   B. B) {(3.43,1.43)}
   C. C) {(1.43,3.43)}
   D. {(0.5,0.4)}

(4marks)

4. Identify the restriction on the variable in the fraction $\frac{3xy}{(x+3)(x-2)}$

   Circle the correct answer **(4marks)**

   A. −3 *and* 2
   B. 3 *and* 2
   C) 0
   D) 1

5. The number 221_b is equal to 85 in base 10. What is the value of b. Choose the correct answer **(4marks)**

   A. 4
   B. 5
   C. 6
   D. 7

6. A sum of 25,000FRW is invested at 8% per annum, compounded quarterly, for 1½ years. Find: the compound interest earned. Choose the correct answer

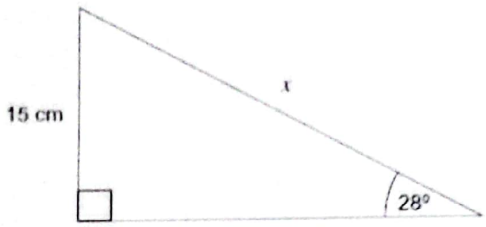
A) 3154.06FRW

B) 28154.06FRW

C) 10000 FRW

D) 5000FRW **(4marks)**

7. What is the length of x? **(4marks)**



A. 13.24
B. 16.98
C. 7.04
D. 31.95

8. Solve the equation: $2x^2 - 11x - 6 = 0$ Choose the correct answer **(4marks)**

A) $S = \{-6, \frac{-1}{2}\}$
B) B) S= $\{6, \frac{-1}{2}\}$
C) C) S= {1, 2}
D) D) None

$2x+1$ $x+3$ $x+1$

9. Solve: $\frac{2x+1}{3} - \frac{x+3}{2} + \frac{2x+1}{6} = 0$. Circle the correct answer **(3marks)**

A. 6

B. 2

C. 3

D. −6

10. A man's daily wage was increased by 25% to 5000FRW.How much it was before it increases. Select the real answer:

(4marks)

A) 6250FRW

B) B) 4000FRW

C) C) 2000 FRW

D) D) 4975FRW

11. Two trains start from cities A and B, 300 km apart, at the same time and move toward each other. One train moves at 60 km/h and the other at 40 km/h. How long will they take to meet? **(4marks)**

A. 2 hours

B. 3 hours

C. 4 hours

D. 5 hours

12. The length of a rectangle is 3 meters more than its width. If the area of the rectangle is 70 m^2, find its dimensions. **(4marks)**

A) Width = 7, Length = 10

B) Width = 5, Length = 8

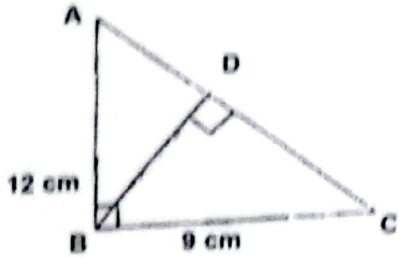
C) Width = 10, Length = 13

D) Width = 6, Length = 9

13. In the figure below ABC is right angled triangle. Find the BD.

(4marks)

Circle the correct answer



A. 7.5cm

B. 15cm

C. 1.3cm

D. 7.2cm

14. Simplify: $\frac{2x^3-3x^2-2x}{2x^2+x}$. Circle the correct answer **(3marks)**

A) $\frac{x-2}{2\,2x+1}$

B) $\frac{}{x-2}$

C) x^3-3

D) None

15. Find the equation of the line perpendicular to $y=\frac{1}{2}x-3$ and passing through the point (2, 5) **(4marks)**

SECTION B: ANSWER ONLY 3 QUESTIONS **(45marks)**

16. a) A car moving at 65 km/h takes 2 h 24 min to travel 156 km. What distance does the car travel in 48 min moving at 55 km/h? **(10marks)**

b) Solve the equation: $31_x - 17_x = 16_x$ **(5marks)**

17. In a class of 53 students, 30 study Chemistry, 20 study Physics, 15 study Mathematics. 6 study both Chemistry and Physics, 4 study both mathematics and Chemistry, 5 study both Physics and Mathematics. All the students study at least one of the subjects.

(a) Represent the information on a Venn diagram. **(7marks)**

(b) Find the number of students who study all the three subjects. **(3marks)**

(c) How many study;

(i) Physics only. **(1mark)**

(ii) Physics but not Mathematics **(2marks)**

(iii) Two subjects only. **(2marks)**

18. a) Simplify completely: $\frac{6x^2+13x+6}{4x+6}$ **(5marks)**

b) Solve: $2x^3 + 9x^2 - 2x - 24 = 0$ **(10marks)**

19. (a) Work out the values of y in the table below given that $y = 2 + 2x - x^2$ **(7marks)**

Complete the table below:

X	-2	-1	0	1	2	3	4
Y							

b) Draw the graph of $y = 2 + 2x - x^2$ **(3marks)**

c) Find the maximum value of $2 + 2x - x^2$ (2marks)

d) Find the range value of x for which y is positive. (2marks)

e) What is the axis of symmetry? (1mark)

20. The triangle ABC is right angled in B, AB=8cm long, AC=10cm and the altitude to hypotenuse BD=3cm

a) Draw the triangle ABC (3marks)

b) Calculate the lengths of BC, AD and DC (6marks)

c) The area and perimeter of the triangle ABC (6marks

Answer Sheet for the chosen questions in Section B

Republic Of Rwanda

Eastern Province

Rwamagana District

Subject: MATHEMATICS I
16/03/2026
PERIOD: 8:30AM – 11:30AM

DISTRICT COMPREHENSIVE ASSESSMENT FOR THE SECOND TERM, 2025-2026

Subject: MATHEMATICS I

CLASS: SENIOR THREE

Combination/Pathway: O LEVEL

Duration:3Hours

..... /100marks

Student Names: .....

CLASS:.....

INSTRUCTIONS:

1) **Remember to write full names on this paper**
2) Do not open this question paper until you are told to do so.
3) This paper consists of TWO sections: A and B
   SECTIONA: Attempt all questions **(55marks)**
   SECTIONB: Attempt any THREE questions **(45marks)**
4) Calculators and mathematical instruments may be used
5) Use only a blue or black pen for writing and a pencil for drawing.