Mathematics Form 2 Questions and Answers - End Term 2 Exams 2021

Mathematics Form 2 End Term 2 Exams 2021 with Marking Schemes

Answer all the questions in this section in the spaces provided

1. Simplify **(3 marks)**

$$\frac{\frac{4}{5}\left(3\frac{1}{4} - 1\frac{3}{8}\right) \div \left(2\frac{1}{2} \div 5\frac{1}{3}\right)}{\frac{3}{5} \text{ of } 3\frac{1}{5}}$$

2. A plot in the shape of a rectangle measures 608 m by 264 m. Equidistant fencing posts are placed along its length and breadth as far apart as possible. Find:
    a. The distance between the posts (2 marks)
    b. The number of posts used **(2 marks)**
3. A ship P of 180 km West of a port Q. Another ship R is at a distance of 90 km and on a bearing of 050° from P. A third ship S is due East of R and due north of Q. By scale drawing determine the bearing of S from P. (Use a scale of 1 cm for 30 km) (4 marks)
4. Simplify the following by use of common factors:

$$\frac{4ac - 16a^2 - bc + 4ab}{c - 4a} + 4$$

5. A business woman bought 288 bananas at sh 10 for every 12. She sold all of them at sh 20 for every 18. What was her percentage profit? **(4 marks)**
6. Solve the simultaneous equations (3 marks)
   3x - 2y = 7
   5x +y = 3
7. When a piece of cloth was washed, it shrank. Its length decreased from 150 cm to 120 cm.

    a. In what ratio did it decrease? (1 mark)
    b. Suppose the width decreased in the same ratio. What is the new width if the original width was 1.4 m? (2 marks)
8. Given the following currency exchange rate, calculate to 3 significant figures the number of dollars that can be exchanged for 25 Sterling pounds.

   1 US dollar ($) = Ksh 76.85
   1 Sterling pound (£) = Ksh 115.30 **(3 marks)**
9. A cylindrical tank whose diameter is 1.4 metres and height 80 cm is initially empty. Water whose volume is 492.8 litres is poured into the tank. Determine the fraction of the tank filled with water. (Take = 22/7). (4 marks)
10. A man is now three times as old as his daughter. In twelve years time he will be twice as old as his daughter. Find their present ages. (3 marks)
11. The number 5.81 contains an integral part and a recurring decimal. Convert the number into an improper fraction and hence into a mixed number. (3 marks)
12. An article which is marked for sh 450 is sold to a customer for sh 393.75. What percentage discount is the customer allowed? (3 marks)
13. On a certain map a road 20 km long is represented by a line 4 cm long. Find the area in hectares of a ranch represented by a rectangle measuring 2.8 cm by 1.6 cm on this map. (3 marks)

respectively.

    i. $y = 7-3x$

x	-2	-1	0	1	2	3	4	5
y	13		7					-8

    ii. $y = 2x - 8$

x	-4	-2	0	2	4	6	8	10
y	-16		-8			4		

    b. On the grid provided, draw the graph of $y = 2x - 8$ and $y = 7 - 3x$ (4 marks)

    c. What is the nature of the two graphs you have drawn? (1 mark)

    d. Use your graphs to solve the simultaneous equations. (1 mark)

        $3x + y = 7$

        $2x - y = 8$

24. The table below represent a surveyor's a field-book record for a piece of land.

	Metres to D	
	250	
	130	90 to C
TO E 60	100	
	40	80 to B
	From A	

Calculate the area of the field in hectares. (10 marks)

Marking Scheme

1.   (3 marks)

$$\frac{\frac{4}{5}\left(3\frac{1}{4} - 1\frac{3}{8}\right) \div \left(2\frac{1}{2} \div 5\frac{1}{3}\right)}{\frac{3}{5} \text{ of } 3\frac{1}{5}}$$

$$\text{Numerator} = \frac{4}{5}\left(2 + \frac{1}{4} - \frac{3}{8}\right) \div \left(\frac{5}{2} \times \frac{3}{16}\right)$$

$$= \frac{4}{5} \times 1\frac{7}{8} \div \frac{15}{32}$$

$$= \frac{4}{5} \times \frac{15}{8} \times \frac{32}{15} = \frac{16}{5}$$

$$\text{Denominator} = \frac{3}{5} \times \frac{16}{5} = \frac{48}{25}$$

$$\text{Expression} = \frac{16}{5} \div \frac{48}{25} = \frac{16}{5} \times \frac{25}{48} = \frac{5}{3} = 1\frac{2}{3}$$

2.   (i) Distance between posts is the HCF of 608 and 264   (2 marks)

        $608 = 2 \times 2 \times 2 \times 2 \times 2 \times 19$

        $264 = 2 \times 2 \times 2 \times 3 \times 11$

        $\text{HCF} = 2^3 = 8$

  Distance between posts $= 8$ m

  (ii) Number of posts $= \frac{2(l + b)}{8}$ (2 marks)

$$= \frac{2(608 + 264)}{8}$$

$$= \frac{1\,744}{8} = 218$$