

2024-08



Negombo Educational Zone

Second Term Evaluation - 2024

Grade - 9

Mathematics

De Mazenod College

Time - 2 hours

Name -

Part - 1

Answer all the questions from 1 to 20 on this paper itself.

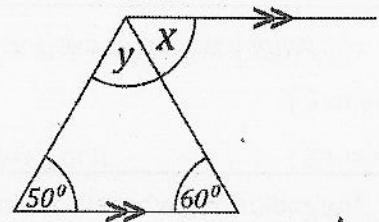
1) Calculate the percentage profit gains by a vendor who sells a book for Rs.600, which was bought to Rs.500.

2) $1101_{\text{two}} + 110_{\text{two}}$; find the value.

3) Solve.

$$\frac{x}{4} - 1 = 3$$

4) According to the information given, find the value of x and y .



5) Simplify. $(5 - x)(4 + x)$

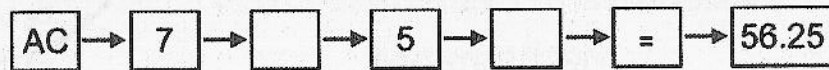
6) A vehicle can travel 120km from 3l of fuel. Calculate the amount of fuel needed to travel a distance of 280km.

7) Make " l " the subject of $s = \frac{n}{2}(a + l)$.

8) Factorise. $25 - x^2$

9) 4.5×10^{-4} Write in general form.

10) Fill the empty boxes to obtain the square of 7.5, by using the calculator.



11) Write the gradient and the intercept of the function. $y = 3x - 4$

12) Find the capacity of a cuboidal shape tank with a length, breadth and height of $3m$, $2m$ and $1m$ respectively.

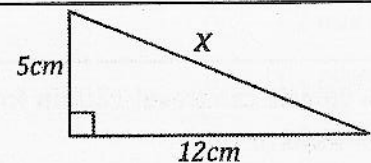
13) $(2^3)^2 + 2^0$; Find the value.

14) $\square : 5 = 3 : 15$ Fill in the blanks.

15) How many metres are there in $\frac{3}{5}$ of $2km$?

16) The radius of a wheel is $28cm$. Find the distance it travels when it rotates on complete round on a linear path.

17) Find the length represented by x .



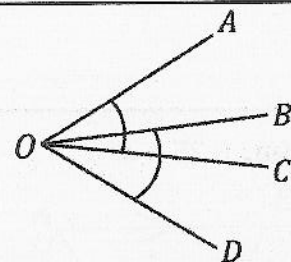
18) Which term of the number sequence with the general term $T_n = 3n + 1$ is 22?

19) Fill in the blanks.

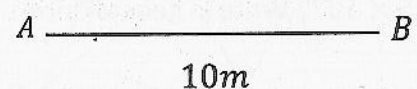
$$\angle AOC = \dots\dots\dots \text{ (Data)}$$

$$\angle AOC - \dots\dots\dots = \angle BOD - \dots\dots\dots \text{ (Axioms)}$$

$$\angle AOB = \angle COD$$



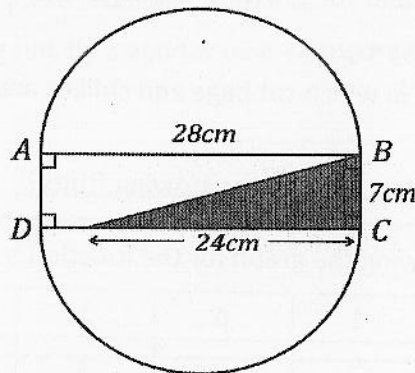
20) A fence should be made equidistance to the points A and B . Show the location of it by using a rough sketch.



Part - 11

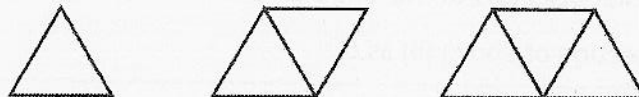
- Answer the first question and another four questions.
- First question carries 16 marks and the others carry 11 marks each.

1) The following is a structure of a wall decoration.



- i. Name 2 geometric shapes that can be seen in it. (2 marks)
- ii. Find the radius of the semi-circular portion AB . (1 mark)
- iii. Find the arc length of the semi-circular portion AB . (3 marks)
- iv. If it is intended to paste a ribbon around the wall decoration, find the minimum length of the ribbon needed for that. (3 marks)
- v. The shaded portion is covered with a piece of cloth, Find the area of it. (3 marks)
- vi. Find the area of the unshaded portion of the rectangle. (4 marks)

2) The following are the figures of some patterns made by using pieces of wire which are equal in length.



- i. Draw the next pattern of it. (1 mark)
- ii. Write the number of pieces of wire in the first 4 patterns respectively. (2 marks)
- iii. By using the above information in (ii), build an algebraic expression for the n^{th} term or the general term of that number sequence. (2 marks)
- iv. By using the n^{th} term, find the number of pieces of wire needed for the 15th pattern. (3 marks)
- v. Which pattern is made by using 53 pieces of wire? (3 marks)

- 3) i. $101011_{\text{two}} - 1001_{\text{two}}$; Simplify. (1 mark)
- ii. $\frac{5a^2 \times 3a^{-4} \times b^5}{10b^2 \times a^2}$; Simplify. (3 marks)
- iii. $3\{2(x - 6) + 3\} = 21$; Solve. (3 marks)
- iv. $3x - 2y = 11$; Solve
 $4x + 2y = 10$ (4 marks)

4) a) Simplify the fractions given below and express the answers in the simplest form.

i. $\left(3\frac{1}{4} + 5\frac{1}{8}\right) \div 8\frac{3}{8}$ (3 marks)

ii. $\frac{2}{3} \times \frac{3}{5}$ of $\frac{4}{7} \div \frac{4}{3}$ (3 marks)

b) A farmer allocated $\frac{1}{2}$ of his land for growing cabbage and $\frac{1}{3}$ for growing chillies. In the remaining portion, fruits were grown.

i. Find the portion of the land in which cabbage and chillies are grown, as a fraction of the whole land. (3 marks)

ii. What fraction of the whole land is used for growing fruits? (2 marks)

5) An incomplete table used for drawing the graph for the function $y = 3x - 2$ is given below.

x	-2	-1	0	1	2	3
y		-5		1	4	

i. Fill in the blanks of the above table. (3 marks)

ii. By using a suitable scale draw the graph. (3 marks)

iii. Write the gradient and the intercept of the graph $y = 3x - 2$. (2 marks)

iv. In the same cartesian plane draw the graph for the function $y = x$. (2 marks)

v. Write the co-ordinates of the point of intersection of the above 2 graphs. (1 mark)

6) Use the straight edge (Ruler) and the compass to carryout the following construction.

i. Construct the triangle ABC where $AB = 6.5\text{cm}$, $\hat{BAC} = 45^\circ$ and $AC = 5\text{cm}$. (4 marks)

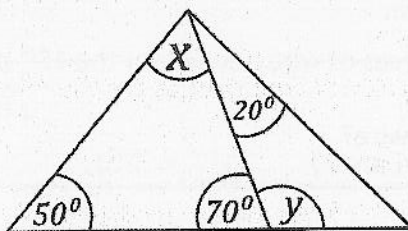
ii. Construct the perpendicular bisectors of AB and BC . (2 marks)

iii. Name the point of intersection of above (ii) as O . (2 marks)

iv. Construct the circle with the center O and the radius OA . (1 mark)

v. Measure and write the radius of the circle. (2 marks)

7) (a) By using the data in the figure given below, find the magnitudes of the angles represented by the algebraic terms by giving reasons. (4 marks)

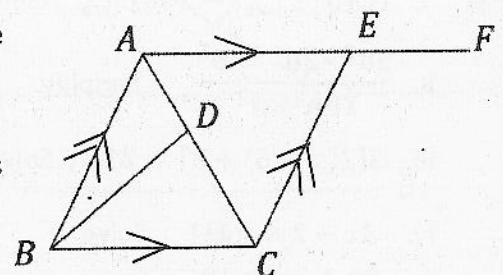


(b) Copy the figure given on to your answer sheet and mark the angles $\hat{CAE} = 60^\circ$, $\hat{BDC} = 80^\circ$ and $\hat{BAD} = 45^\circ$. (2 marks)

Write the way of obtaining the magnitudes of the angles given below by giving reasons.

i. $\hat{ACB}$ (m - 1) iii. $\hat{ABD}$ (m - 2)

ii. $\hat{BDA}$ (m - 1) iv. $\hat{CEF}$ (m - 1)



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