

Grade 9

Mathematics - 1

Time: 2 hours

Name/ Index No

Part I

- ❖ Write down the answers for all the questions in the paper it self.
- ❖ Each question carries 2 marks.

01. Write the first two terms of the number pattern which denotes $3n - 1$ as its general term.

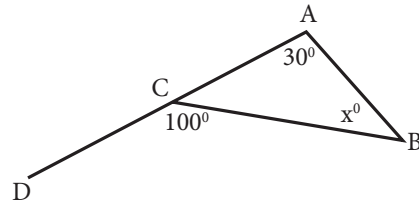
02. Find the value.

$$11_{\text{two}} + 101_{\text{two}}$$

03. Write 253.85 in scientific notation.

04. Find the percentage of the profit made by selling a book bought for Rs. 60 for Rs. 75.

05. Find the value of x



06. Solve $\frac{m - 5}{8} = 5$

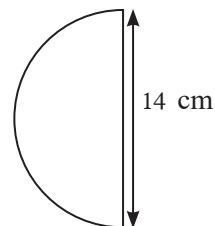
07. Round off 201.539 to the first decimal place.

08. Fill the blank using suitable symbol.

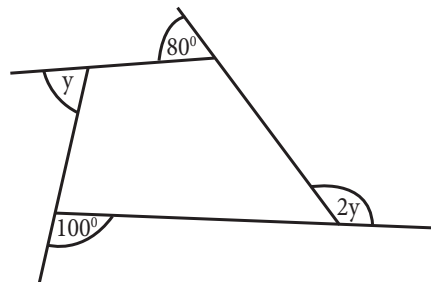
A = { 0, 1, 2, 3, 4 }

5 A

09. Find the arc length of the semicircle.

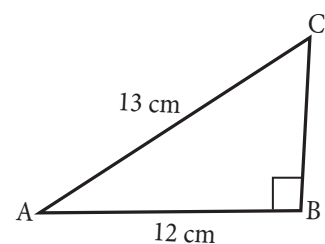


10. Find the value of y

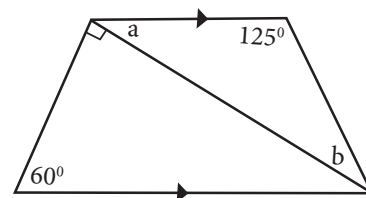


11. Solve the inequality $3x - 1 > 5$ and write the solutions for x .

12. Find the length BC.

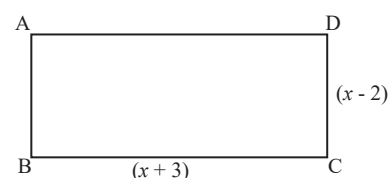


13. Find the value of a and b



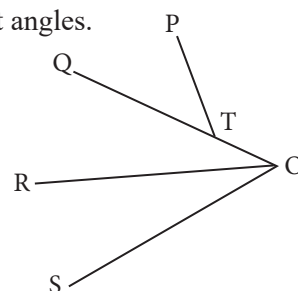
14. Factorize $4a^2 - b^2$

15. Write the perimeter of the rectangle ABCD using x .



16. Select and underline the correct answer that represent a pair of adjacent angles.

- i. \widehat{PTQ} and \widehat{QOR}
- ii. \widehat{PTQ} and \widehat{ROS}
- iii. \widehat{QOR} and \widehat{ROS}



17. Write the gradient (m) and the intercept (c) of the graph of the function $y = -\frac{1}{3}x + 5$

18. Place a '✓' in front of the correct statements.

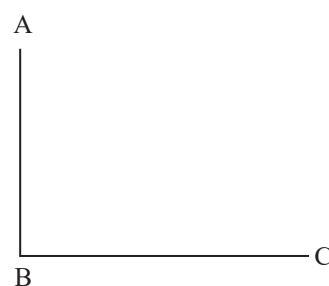
- i. All the sides are equal in a regular polygon
- ii. The sum of the interior angles of any polygon is 180°
- iii. A pair of interior angles in a triangle cannot be obtuse angles.

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19. Simplify and write the answer with positive indices.

$$\left(\frac{x^2}{x^5}\right)^3$$

20. Mark the locus of the points equidistance from line AB and BC.



Grade 9

Mathematics - 1I

Name/ Index No

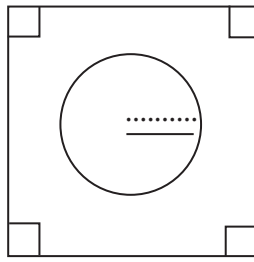
❖ Answer 5 questions only.

Each question carries 12 marks

- (01) a) 6, 10, 14, 18, is the number of patients infected with covid disease reported within 4 consecutive days in a city.
- (i) Find the common difference (1 mark)
- (ii) Write next 2 terms of the number sequence using common difference. (2 marks)
- (iii) Write the general term of the number sequene (2 marks)
- (iv) If patients were reported according to the above pattern, find the number of patients expected to be reported on the 50th day. (2 marks)
- (v) On which day 50 patients are reported? (2 marks)
- b) Factorize $x^2 + 4x - 5$ (3 marks)

- (02) a) Simplify $\left(\frac{1}{3} + \frac{1}{2}\right) \div 1\frac{1}{2}$ (4 marks)
- b) A pair of trouser is bought for Rs. 400 and marks its selling price to earn a profit of 10%
When selling the pair of trouser, a discount of 5% is offered.
- (i) What is the marked price? (2 marks)
- (ii) What is the selling price after giving the discount? (3 marks)
- (iii) Find the profit he got after selling the trouser (1 mark)
- (iv) Find the profit percentage (2 marks)

- (03) The square shaped plot of land 20m long shown in the figure has a circular plant nursery with a radius of 7m in the center.



- (i) Copy the figure and insert the given information. (2 marks)
- (ii) Find the area of the square polt. (2 marks)
- (iii) Find the area of the land without the plant nursery. (4 marks)
- (iv) If it costs Rs. 220 per square metre to cover the land without the nursery with grass completely. Find the minumum amount of money required (2 marks)
- (v) What is the length of the fence to be built around the plant nursery (2 marks)

- (04) An incomplete table to draw the graph of the function $y = 2x - 2$ is given below.

x	-2	-1	0	1	2	3
y	-6	-2	2	4

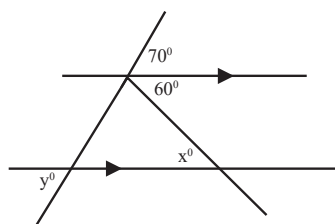
- (i) Write the gradient and the intercept of the graph. (2 marks)
- (ii) Find the value of y when $x = -1$ and $x = 1$ (2 marks)
- (iii) Draw the graph of the function in a suitable coordinate plane (3 marks)
- (iii) Write the coordinates of the point at which the graph intersect the y axis (2 marks)
- (iv) Write the equation of the straight line that is parallel to the line $y = 2x - 2$ and passes through the point $(0, 3)$ (3 marks)

- (05) The table below shows the number of packets of milk powder sold within a day in a particular shop.

Number of milk packets	5	10	15	20	25	30	35	40	45
Number of customers	5	7	4	16	15	11	10	4	8

- (i) Write the range of these data. (2 marks)
- (ii) Find the mode of the data. (1 mark)
- (iii) Find the mean number of milk packets sold within a day to the nearest whole number (6 marks)
- (iv) If a profit of Rs. 10 is made from a packet, what is the expected profit from the sale of milk powder within 3 months? (3marks)

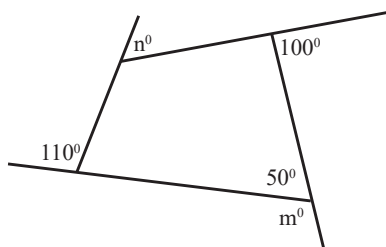
(06)



(a) Find the values of x and y with reasons by using the information given. (4 marks)

(b)

(i) Find the magnitude of an exterior angle of a regular polygon with 10 sides. (4 marks)



(ii) Find the values of m and n according to the diagram given. (4 marks)

(07) a) (i) $X = \{ \text{Letters of the word "KATARAGAMA"} \}$

List the elements of the set X .

(2 marks)

(ii) How many elements are there in the set X

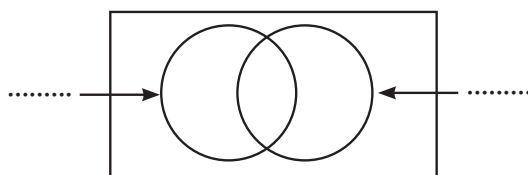
(1 mark)

b) $\mathcal{E} = \{ 1, 2, 3, 4, 5, 6, 7, 8, 9 \}$

$P = \{ 2, 4, 6, 8 \}$

$Q = \{ 3, 6, 9 \}$

Copy the venn diagram given below and include the elements in the sets in the venn diagram



(6 marks)

Write the followings using the information in the venn diagram.

(i) $P \cap Q$ (1 mark)

(ii) $P \cup Q$ (1 mark)

(iii) Q' (1 mark)