

SUBJECT: MATHEMATICS

MAX. MARKS : 40

CLASS : IX

DURATION : 1½ hrs

General Instructions:

- (i). All questions are compulsory.
- (ii). This question paper contains 20 questions divided into five Sections A, B, C, D and E.
- (iii). **Section A** comprises of 10 MCQs of 1 mark each. **Section B** comprises of 4 questions of 2 marks each. **Section C** comprises of 3 questions of 3 marks each. **Section D** comprises of 1 question of 5 marks each and **Section E** comprises of 2 Case Study Based Questions of 4 marks each.
- (iv). There is no overall choice.
- (v). Use of Calculators is not permitted

SECTION – A

Questions 1 to 10 carry 1 mark each.

1. The equation $x = 5$ in two variables can be written as
(a) $1.x + 1.y = 5$ (b) $0.x + 1.y = 5$ (c) $0.x + 0.y = 5$ (d) $1.x + 0.y = 5$
2. $x = 5, y = -2$ is a solution of the linear equation
(a) $2x + y = 9$ (b) $2x - y = 12$ (c) $x + 3y = 1$ (d) $x + 3y = 0$
3. If the linear equation has solutions $(-3, 3), (0, 0), (3, -3)$, then equation is
(a) $x - y = 0$ (b) $x + y = 0$ (c) $2x - y = 0$ (d) $x + 2y = 0$
4. If point $(3, 0)$ lies on the graph of the equation $2x + 3y = k$, then the value of k is
(a) 6 (b) 3 (c) 2 (d) 5
5. The graph of the linear equation $3x + 5y = 15$ cuts the x -axis at the point
(a) $(5, 0)$ (b) $(3, 0)$ (c) $(0, 5)$ (d) $(0, 3)$
6. Any solution of the linear equation $2x + 0y = 9$ in two variables, is of the form
(a) $\left(\frac{9}{2}, 0\right)$ (b) $\left(\frac{9}{2}, n\right)$, n is a real number
(c) $\left(n, \frac{9}{2}\right)$, n is a real number (d) $\left(0, \frac{9}{2}\right)$
7. The equation of x -axis is of the form
(a) $x = 0$ (b) $y = 0$ (c) $x + y = 0$ (d) $x = y$
8. The point on the graph of the equation $2x + 5y = 20$, where x -coordinate is $\frac{5}{2}$, is
(a) $\left(3, \frac{5}{2}\right)$ (b) $\left(\frac{5}{2}, \frac{5}{2}\right)$ (c) $\left(\frac{5}{2}, 0\right)$ (d) $\left(\frac{5}{2}, 3\right)$

In the following questions 9 and 10, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.

- (c) A is true but R is false.
(d) A is false but R is true.

9. Assertion (A): The linear equation in two variables is represented by $ax + by + c = 0$. Where a , b , and c are the whole numbers.

Reason (R): The linear equation in two variables have infinitely many solutions.

10. Assertion (A): If $x = 2$ and $y = 3$ is a solution of the equation $ax + y = 15$, then the value of a is 6.

Reason (R): The solution of a line needs to satisfy the equation of the line.

SECTION – B

Questions 11 to 14 carry 2 marks each.

- 11.** The sum of a two-digit number and the number obtained by reversing the order of its digits is 88. Express this information in linear equation.
- 12.** Write $3x + 2y = 18$ in the form of $y = mx + c$. Find the value of m and c . Is $(4, 3)$ lies on this linear equation?
- 13.** Find the value of a , if the line $5y = ax + 10$, will pass through (i) $(2, 3)$, (ii) $(1, 1)$.
- 14.** Find the solution of the linear equation $x + 2y = 8$ which represents a point on the: (i) x-axis (ii) y-axis

SECTION – C

Questions 15 to 17 carry 3 marks each.

- 15.** Find the value of a , if the line $3y = ax + 7$, will pass through:
(i) $(3, 4)$, (ii) $(1, 2)$, (iii) $(2, -3)$
- 16.** Show that the points A $(1, 2)$, B $(-1, -16)$ and C $(0, -7)$ lie on the graph of the linear equation $y = 9x - 7$.
- 17.** For what value of p ; $x = 2$, $y = 3$ is a solution of $(p + 1)x - (2p + 3)y - 1 = 0$?
(i) Write the equation.
(ii) Is this line passes through the point $(-2, 3)$? Give justification.

SECTION – D

Questions 18 carry 5 marks each.

- 18.** (i) If the point $(4, 3)$ lies on the linear equation $3x - ay = 6$, find whether $(-2, -6)$ also lies on the same line? (2)
(ii) Find the coordinate of the point lies on above line (a) abscissa is zero (b) ordinate is zero (1)
(iii) The points A (a, b) and B $(b, 0)$ lie on the linear equation $y = 8x + 3$. Find the value of a and b . (2)

SECTION – E (Case Study Based Questions)

Questions 19 to 20 carry 4 marks each.

- 19.** Christmas is celebrated on 25 December every year to remember the birth of Jesus Christ, who Christians believe is the son of God. Santa Claus, also known as the Father of Christmas, is a legendary character originating in western Christian culture and he brings gifts for everyone on Christmas. Let Santa Claus brings 3 chocolates for each child and 2 chocolates for each adult

present at the Christmas party at Michael's home along with a Christmas cake. He distributes total 90 chocolates among all.



- (a) How to represent the above situation in a linear equation in two variables by taking the number of children as x and the number of adults as y ? If the number of children is 10, then find the number of adults at the Christmas party.
- (b) Find the value of k , if $x = 5$, $y = 1$ is a solution of the equation $5x + 7y = k$.
- (c) Write the standard form of the linear equation $y - x = 7$.

- 20.** On his birthday, Manoj planned that this time he celebrates his birthday in a small orphanage centre. He bought apples to give to children and adults working there. Manoj donated 2 apples to each children and 3 apples to each adult working there along with Birthday cake. He distributed 60 total apples.



- (a) Taking the number of children as ' x ' and the number of adults as ' y '. Represent the above situation in linear equation in two variables.
- (b) If the number of children is 15, then find the number of adults.
- (c) If the number of adults is 12, then find the number of children.
- (d) If $x = -5$ and $y = 2$ is a solution of the equation $3x + 5y = b$, then find the value of ' b '

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