PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

One cannot escape the feeling that these mathematical formulas have an independent existence and an intelligence of their own, that they are wiser than we are, wiser even than their discoverers...

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☆ Multiple Choice Questions, with **only** one correct option.

Q01. The solutions of the equation $2x - y - 5 = 0$ are:

(a) $x = 2, y = -1$ (b) $x = 2, y = 1$ (c) $x = 1, y = -1$ (d) $x = -2, y = 1$

Q02. The sum of digits of a two digit number is 9. Also, 9 times this number is twice the number obtained by reversing the order of the digits. The number is:

(a) 20 (b) 16 (c) 18 (d) None of these

Q03. The system of equations $kx - y = 2$ and $6x - 2y = 3$ has a unique solution when:

(a) $k = 0$ (b) $k \neq 0$ (c) $k = 3$ (d) $k \neq 3$

Q04. A boat can row 1 km with stream in 10 minutes and 1 km against the stream in 20 minutes. The speed of the boat in still water is:

(a) 1.5 km/hr (b) 3 km/hr (c) 3.4 km/hr (d) 4.5 km/hr

Q05. A boat goes 24 km upstream and 28 km downstream in 6 hours. It goes 30 km upstream and 21 km downstream in 6 hours and 30 minutes. The speed of the boat in still water is:

(a) 4 km/hr (b) 6 km/hr (c) 10 km/hr (d) 14 km/hr

Q06. Point (4, 3) lies on the line:

(a) $3x + 7y = 27$ (b) $7x + 2y = 47$ (c) $3x + 4y = 24$ (d) $5x - 4y = 1$

Q07. The speed of train 150 m long is 50 km/hr. The time it will take to cross a platform 600 m long is:

(a) 50 sec (b) 54 sec (c) 60 sec (d) None of these

Q08. The graph of an equation $y = -3$ is a line which will be:

(a) parallel to x-axis (b) parallel to y-axis
(c) passing through origin (d) on x-axis

Q09. The value of k for which $kx + 2y = 5$ and $3x + y = 1$ have unique solution, is:

(a) $k = -1$ (b) $k \neq 6$ (c) $k = 6$ (d) $k = 2$

Q10. The graph of the equation $x - y = 0$ is:

(a) parallel to x-axis (b) parallel to y-axis
(c) passing through origin (d) None of these

Q11. Five years hence, father's age will be three times the age of his daughter. Five years ago, father was seven times as old as his daughter. Their present ages are:

(a) 20 years, 10 years (b) 40 years, 20 years
(c) 40 years, 10 years (d) 30 years, 10 years

Q12. In a two digit number, the unit's digit is twice the ten's digit. If 27 is added to the number, the digits interchange their places. The number is:
(a) 22 (b) 46 (c) 36 (d) 63

Q13. The pair of equations $3x+4y=18,\ 4x+\frac{16}{3}y=24$ has:
(a) no solution (b) unique solution
(c) infinitely many solutions (d) can't say

Q14. The pair of equations $3x+2y=5,\ 2x-3y=7$ has:
(a) no solution (b) one solution (c) many solutions (d) two solutions

Q15. If the pair of equations $2x+3y=7,\ kx+\frac{9}{2}y=12$ have no solution, then value of k is:
(a) $\frac{2}{3}$ (b) $\frac{3}{2}$ (c) 3 (d) –3

Q16. The equations $x-y=0.9$ and $\frac{11}{x+y}=2$ have the solution:
(a) $x=5,\ y=1$ (b) $x=2.3,\ y=3.2$ (c) $x=3.2,\ y=2.3$ (d) $x=3,\ y=2$

Q17. If $bx+ay=a^2+b^2$ and $ax-by=0$ then, the value of $x-y$ is:
(a) $b-a$ (b) $a-b$ (c) a^2-b^2 (d) b^2+a^2

Q18. If $2x+3y=0,\ 4x-3y=0$ then, $x+y$ equals:
(a) 0 (b) –1 (c) 1 (d) 2

Q19. If $\sqrt{a}x-\sqrt{b}y=b-a$ and $\sqrt{b}x-\sqrt{a}y=0$ then, value of $x-y$ is:
(a) $a+b$ (b) $a-b$ (c) $\sqrt{a}-\sqrt{b}$ (d) $\sqrt{b}-\sqrt{a}$

Q20. If $\frac{2}{x}+\frac{3}{y}=13$ and $\frac{5}{x}-\frac{4}{y}=-2$ then, $x+y$ equals:
(a) $\frac{1}{6}$ (b) $-\frac{1}{6}$ (c) $\frac{5}{6}$ (d) $-\frac{5}{6}$

Q21. If $31x+43y=117$ and $43x+31y=105$ then, the value of $x+y$ is:
(a) –3 (b) $\frac{1}{3}$ (c) $-\frac{1}{3}$ (d) 3

Q22. If $19x-17y=55$ and $17x-19y=53$ then, the value of $x-y$ is:
(a) –3 (b) $\frac{1}{3}$ (c) 3 (d) 5

Q23. If $\frac{x}{2}+y=0.8$ and $\frac{7}{x+\frac{y}{2}}=10$ then, the value of $x+y$ is:
(a) 1 (b) 0.6 (c) –0.8 (d) 0.5

Q24. If (6, k) is a solution of the equation $3x+y=22$ then, the value of k is:
(a) –4 (b) 4 (c) 3 (d) –3

Q25. If $3x-5y=1$ and, $\frac{2x}{x-y}=4$ then, the value of $x+y$ is:

(a) 3 (b) –3 (c) $\frac{1}{3}$ (d) $-\frac{1}{3}$

Q26. If the pair of equations $2x+3y=5$ and $10x+15y=2k$ represent two coincident lines then, the value of k is:

(a) $-\frac{25}{2}$ (b) –5 (c) $\frac{25}{2}$ (d) $-\frac{5}{2}$

Q27. Rs.4900 was divided among a group of 150 children. If each girl gets Rs.50 and each boy gets Rs.25 then, the number of boys in the group is:

(a) 100 (b) 102 (c) 104 (d) 105

Q28. Every linear equation in two variables has _____ solution(s).

(a) no (b) one (c) two (d) infinitely many

Q29. $\frac{a_1}{a_2}=\frac{b_1}{b_2}=\frac{c_1}{c_2}$ is the condition for:

(a) intersecting lines (b) parallel lines (c) coincident lines (d) none of these

Q30. For a pair of equation to be consistent and dependent, the pair must have:

(a) no solution (b) unique solution

(a) infinitely many solutions (d) none of these

Q31. Graph of every linear equation in two variables represents a _____.

(a) point (b) straight line (c) curve (d) triangle

Q32. Each point on the graph of pair of two lines is a common solution of the lines in case of:

(a) infinitely many solutions (b) only one solution

(c) no solution (d) none of these

Q33. One of the common solution of $ax+by=c$ and y-axis is:

(a) $\left(0,\frac{c}{b}\right)$ (b) $\left(0,\frac{b}{c}\right)$ (c) $\left(\frac{c}{b},0\right)$ (d) $\left(0,-\frac{c}{b}\right)$

Q34. If the value of x in the equation $2x-8y=12$ is 2 then, the corresponding value of y will be:

(a) –1 (b) 1 (c) 0 (d) 2

Q35. The pair of linear equations is said to be inconsistent if they have:

(a) only one solution (b) no solution

(c) infinitely many solutions (d) both a and c

Q36. On representing $x=a$ and $y=b$ graphically, we get:

(a) parallel lines (b) coincident lines

(c) intersecting lines at (a, b) (d) intersecting lines at (b, a)

Q37. How many real solutions of $2x+3y=5$ are possible?

(a) no (b) one (c) two (d) infinitely many

Q38. The value of k for which the system of equations $3x+2y=-5$, $x-ky=2$ has a unique solution, is:

(a) $k=\frac{2}{3}$ (b) $k\neq\frac{2}{3}$ (c) $k=-\frac{2}{3}$ (d) $k\neq-\frac{2}{3}$

Q39. If the lines represented by the pair of linear equations $2x+5y=3,\ 2(k+2)y+(k+1)x=2k$ are coincident then, the value of k is:

(a) –3 (b) 3 (c) 1 (d) –2

Q40. The coordinates of the point where x-axis and the line $\frac{x}{2}+\frac{y}{3}=1$ intersect, are:

(a) (0, 3) (b) (3, 2) (c) (2, 0) (d) (0, 2)

Q41. Graphically $x-2=0$ represents a line:

(a) parallel to x-axis at a distance 2 units from x-axis

(b) parallel to y-axis at a distance 2 units from y-axis

(c) parallel to x-axis at a distance 2 units from y-axis

(d) parallel to y-axis at a distance 2 units from x-axis

Q42. If $ax+by=c$ and $lx+my=n$ has unique solution then the relation between the coefficients will be of the form:

(a) $am \neq lb$ (b) $am=lb$ (c) $ab=lm$ (d) $ab \neq lm$

Q43. The value of 'a' for which (3, a) lies on $2x-3y=5$:

(a) $\frac{1}{3}$ (b) 3 (c) $-\frac{1}{3}$ (d) None of these

Q44. If $2^{x-y}=8$ and $2^{x+y}=64$, then value of x and y will be:

(a) $\frac{9}{2},\frac{3}{2}$ (b) $-\frac{9}{2},\frac{3}{2}$ (c) $\frac{9}{2},-\frac{3}{2}$ (d) 3, 2

Q45. On solving $x-y=3$ and, $x+y=5$, we have value of y as:

(a) 1 (b) 2 (c) 3 (d) 4

Q46. The solution of the equations $7x-2y=3$ and $11x-1.5y=8$ is:

(a) $x=2,\ y=1$ (b) $x=1,\ y=2$ (c) $x=-1,\ y=2$ (d) None of these

Q47. If $3^{x-y}=9$ and $3^{x+y}=81$, then value of y is:

(a) 1 (b) 2 (c) 3 (d) None of these

Q48. If 1 is added in numerator and denominator both, then a fraction changes to 4. If 1 is subtracted from the numerator and denominator both, the fraction changes to 7. Numerator of the fraction is:

(a) 2 (b) 3 (c) 7 (d) 15

Q49. If system of equations $a_1x+b_1y+c_1=0$ and $a_2x+b_2y+c_2=0$ has infinitely many solutions, then:

(a) $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$ (b) $\frac{a_1}{a_2}=\frac{b_1}{b_2}=\frac{c_1}{c_2}$ (c) $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}=\frac{c_1}{c_2}$ (d) None of these

Q50. The value of y obtained on solving the equations $2x+y=2x-y=\sqrt{8}$ is:

(a) 0 (b) $\frac{1}{4}$ (b) $\frac{1}{2}$ (d) $\frac{3}{4}$

Q51. The value of k for which the system of equations $2x+3y=5$ and $4x+ky=10$ has an infinite number of solutions, is:

(a) 1 (b) 3 (c) 6 (d) 0

Q52. Half the perimeter of a rectangular garden, whose length is 4 m more than its width is 36 m. The dimensions of the garden are:

(a) $l = 20$ m, $b = 16$ m (b) $l = 16$ m, $b = 20$ m

(c) $l = 24$ m, $b = 20$ m (d) $l = 30$ m, $b = 16$ m

Q53. A system of two simultaneous linear equations in two variables is inconsistent, if their graphs:

(a) are parallel (b) are coincident

(c) intersect at one point (d) None of these

Q54. Ritu can row downstream 20 km in 2 hours, and upstream 4 km in 2 hours. Her speed of rowing in still water and the speed of the current respectively are:

(a) 4 km/h, 4 km/h (b) 6 km/h, 4 km/h

(c) 6 km/h, 6 km/h (d) 4 km/h, 6 km/h

Q55. A boat is rowed downstream at 15.5 km/h and upstream at 8.5 km/h. The speed of the stream is:

(a) 3.5 km/h (b) 5.75 km/h (c) 6.5 km/h (d) 7 km/h

Q56. On solving $3^{x+y} = 81$ and $81^{x-y} = 3$, we observe that:

(a) No solution (b) $x = 2\frac{1}{2},\ y = 1\frac{1}{2}$

(c) $x = 2,\ y = 2$ (d) $x = 2\frac{1}{8},\ y = 1\frac{7}{8}$

Q57. The sum of two digits of a two digits number is 12. If the digits are reversed, then the number so formed exceeds the original number by 18. The original number is:

(a) 64 (b) 56 (c) 79 (d) 57

Q58. If $\frac{6}{x} + \frac{12}{y} = 7$ and $\frac{2}{x} + \frac{3}{y} = 2$ then, the solution is:

(a) 6, 12 (b) 2, 4 (c) 2, 3 (d) None of these

ANSWERS KEY

Q01. a	Q02. c	Q03. d	Q04. d	Q05. c	Q06. c	Q07. b
Q08. a	Q09. b	Q10. c	Q11. c	Q12. c	Q13. c	Q14. b
Q15. c	Q16. c	Q17. a	Q18. a	Q19. d	Q20. c	Q21. d
Q22. c	Q23. a	Q24. b	Q25. a	Q26. c	Q27. c	Q28. d
Q29. c	Q30. c	Q31. b	Q32. a	Q33. a	Q34. a	Q35. b
Q36. c	Q37. d	Q38. d	Q39. b	Q40. c	Q41. b	Q42. a
Q43. a	Q44. a	Q45. a	Q46. b	Q47. a	Q48. d	Q49. b
Q50. a	Q51. c	Q52. a	Q53. a	Q54. b	Q55. a	Q56. d
Q57. d	Q58. c					

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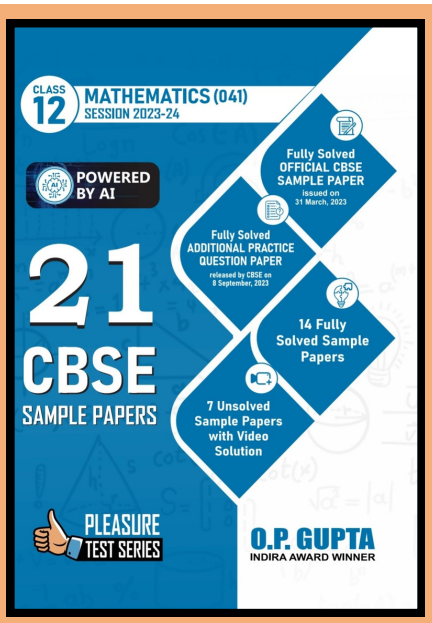

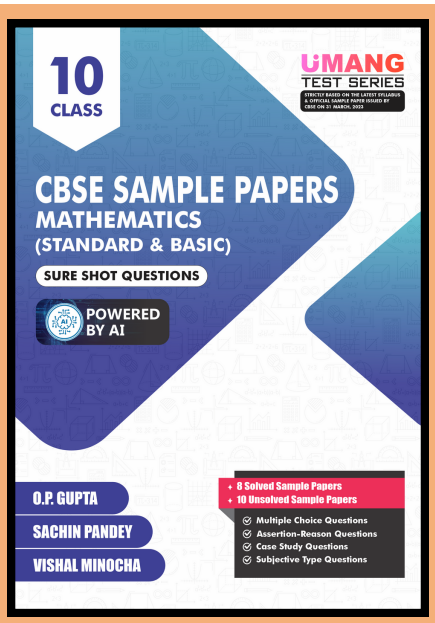

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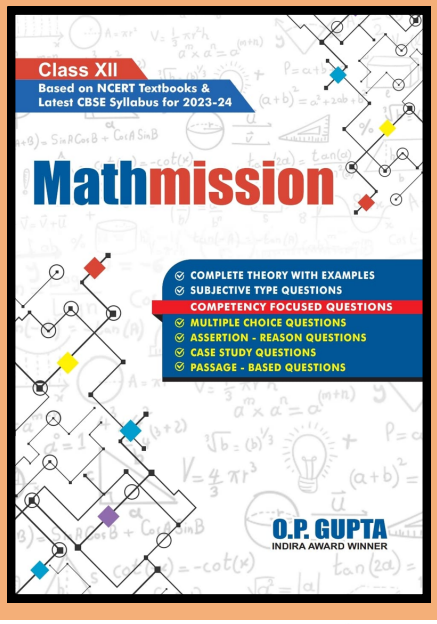

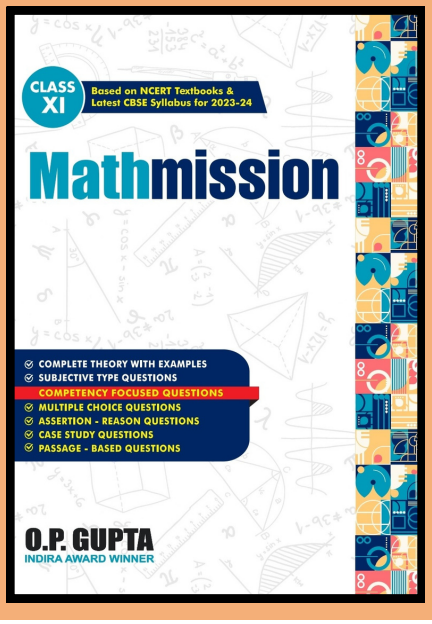

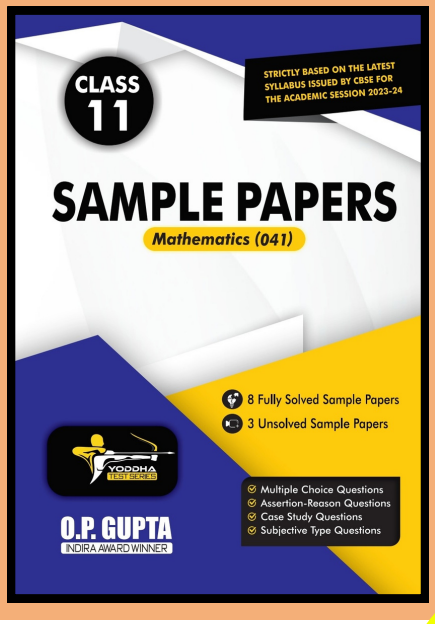

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