

Question Bank

GRADE : 10

Subject: Math

Chapter : 3-Linear Equations

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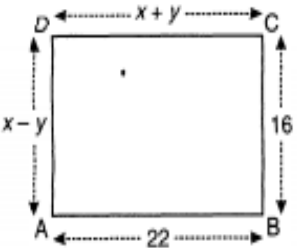
Section A		
1	The pair of equations $x = 5$ and $y = 5$ has a) unique solution b) only solution $(0, 0)$ c) no solution d) many solutions	CBSE(2020, 2023) [1]
2	If $\frac{2x}{3} - \frac{y}{2} + \frac{1}{6} = 0$ and $\frac{x}{2} + \frac{2y}{3} = 3$ then a) $x = - 2, y = 3$ b) $x = - 2, y = - 3$ c) $x = 2, y = 3$ d) $x = 2, y = - 3$	[1]
3	The area of the triangle formed by the lines $x = 3, y = 4$ and $x = y$ is a) 3sq. unit b) $1/2$ sq. unit c) 2sq. unit d) 1 sq. unit	[1]
4	The cost of a notebook is twice the cost of a pen. If the cost of a notebook is ₹ x and that of a pen is ₹ y , then a linear equation in two variables to represent the given condition is _____.	CBSE(2018, 2020) [1]

	<p>a) $x - 2y = 0$</p> <p>b) $2x - y = 0$</p> <p>c) $2x + y = 0$</p> <p>d) $x + 2y = 0$</p>	
5	<p>A part of monthly expenses of a family on milk is fixed which is ₹ 700 and remaining varies with quantity of milk taken extra at the rate of ₹ 25 per litre. Taking quantity of milk required extra as x litres and total expenditure on milk as ₹ y, write a linear equation from the above information.</p> <p>a) $- 25x + y = 700$</p> <p>b) $20x + 10y = 300$</p> <p>c) $20x + y = 500$</p> <p>d) $x + 25y = 900$</p>	[1]
6	<p>The area of the triangle formed by $y = x$, $x = 6$ and $y = 0$ is</p> <p>a) 18 sq. units</p> <p>b) 72 sq. units</p> <p>c) 36 sq. units</p> <p>d) 9 sq. units</p>	[1]
7	<p>The pair of linear equations $x + 2y - 5 = 0$ and $2x - 4y + 6 = 0$:</p> <p>a) is consistent with a unique solution</p> <p>b) is consistent with many solutions</p> <p>c) is inconsistent</p> <p>d) is consistent with two solutions</p> <p style="text-align: right;">CBSE (2020, 2023)</p>	[1]
8	<p>In $\triangle ABC$, if $\angle C = 50^\circ$ and $\angle A$ exceeds $\angle B$ by 44°, then $\angle A =$</p> <p>a) 40°</p> <p>b) 43°</p> <p>c) 67°</p> <p>d) 87°</p>	[1]
9	<p>For what value of k, do the equations $kx - 2y = 3$ and $3x + y = 5$ represent two lines intersecting at a unique point?</p> <p>a) $k = 6$</p> <p style="text-align: right;">CBSE (2021, 2024)</p>	[1]

	<p>b) all real values except - 6</p> <p>c) $k = - 3$</p> <p>d) $k = 3$</p>	
10	<p>If $\angle A$ and $\angle B$ are complementary angles and $\angle A$ is x, then which equation can be used to find $\angle B$ which is denoted by y?</p> <p>a) $y = (180^\circ - x)$</p> <p>b) $y = (90^\circ - x)$</p> <p>c) $y = (x + 180^\circ)$</p> <p>d) $y = (90^\circ + x)$</p>	[1]
11	<p>The graphs of the equations $6x - 2y + 9 = 0$ and $3x - y + 12 = 0$ are two lines which are</p> <p>a) coincident</p> <p>b) parallel</p> <p>c) perpendicular to each other</p> <p>d) intersecting exactly at one point</p>	[1] CBSE (2020)
12	<p>Two lines are given to be parallel. The equation of one of these lines is $5x - 3y = 2$. The equation of the second line can be:</p> <p>a) $- 15x + 9y = 5$</p> <p>b) $- 15x - 9y = 5$</p> <p>c) $9x - 15y = 6$</p> <p>d) $15x + 9y = 5$</p>	[1]
13	<p>If the system of equations</p> $3x + y = 1$ <p>and</p> $(2k - 1) x + (k - 1) y = 2k + 1$ <p>is inconsistent, then $k =$</p> <p>a) 1</p> <p>b) 0</p> <p>c) - 1</p> <p>d) 2</p>	[1] CBSE(2023)

14	<p>₹ 9,000 were divided equally among a certain number of persons. If there been 20 more persons, each would have got ₹ 160 less. Find the original number of persons.</p> <p style="text-align: right;">CBSE (2019)</p> <p>a) 24 b) 25 c) 26 d) 27</p>	[1]
15	<p>When L_1 and L_2 are coincident, then the graphical solution of system of linear equation have</p> <p>a) infinite number of solutions b) no solution c) unique solution d) one solution</p>	[1]
16	<p>The system of equations $2x + 3y - 7 = 0$ and $6x + 5y - 11 = 0$ has</p> <p>a) unique solution b) no solution c) infinite many solutions d) non zero solution</p>	[1]
17	<p>Two numbers are in the ratio 1 : 3. If 5 is added to both the numbers, the ratio becomes 1 : 2. The numbers are</p> <p style="text-align: right;">CBSE (2018)</p> <p>a) 7 and 21 b) 6 and 18 c) 5 and 15 d) 4 and 12</p>	[1]
18	<p>The graph of the linear equation $2x + 5y = 10$ meets the x - axis at the point.</p> <p>a) (0, 5) b) (2, 0) c) (5, 0) d) (0, 2)</p>	[1]
19	<p>The pair of linear equations $\frac{3x}{2} + \frac{5y}{3} = 7$ and $9x + 10y = 14$ is:</p>	[1]

	<p>a) consistent with one solution</p> <p>b) consistent with many solutions</p> <p>c) consistent</p> <p>d) inconsistent</p>	
20	<p>The value of k for which the system of equations $3x - y + 8 = 0$ and $6x - ky + 16 = 0$ has infinitely many solutions, is</p> <p>a) $-\frac{1}{2}$</p> <p>b) $\frac{1}{2}$</p> <p>c) 2</p> <p>d) - 2</p>	[1]
21	<p>If $(-3, 2)$ is a solution of the linear equation $5x + 3ky = 3$, then the value of k is _____.</p> <p>a) 6</p> <p>b) 3</p> <p>c) 5</p> <p>d) 2</p>	[1]
22	<p>The lines represented by $3x + y - 12 = 0$ and $x - 3y + 6 = 0$ intersects the x-axis at</p> <p>a) $(6, 0)$ and $(-4, 0)$</p> <p>b) $(6, 0)$ and $(4, 0)$</p> <p>c) $(-6, 0)$ and $(-4, 0)$</p> <p>d) $(-6, 0)$ and $(4, 0)$</p>	[1] CBSE (2019)
23	<p>The value of k for which the system of linear equations $x + 2y = 3$, $5x + ky + 7 = 0$ is inconsistent is:</p> <p>a) $-\frac{14}{3}$</p> <p>b) $\frac{2}{5}$</p> <p>c) 10</p> <p>d) 5</p>	[1]

24	Value of x in pair of linear equations $36x + 24y = 702$ and $24x + 36y = 558$ is _____. a) 16 b) $\frac{145}{7}$ c) 17 d) $\frac{33}{2}$	CBSE (2021) [1]
25	Solve the following pair of linear equations: $3x - 5y = 4$ $2y + 7 = 9x$	[1]
26	Given the linear equation $3x + 4y - 8 = 0$, write another linear equation in two variables such that the geometrical representation of the pair so formed is parallel lines.	[1]
27	The equation $ax^n + by^n + c = 0$ represents a straight line if	[1]
28	If $2x + y = 13$ and $4x - y = 17$, find the value of $(x - y)$. CBSE (2021)	[1]
29	In a deer park, the number of heads and the number of legs of deer and human visitors were counted and it was found that there were 39 heads and 132 legs. Find the number of deer and human visitors in the park.	[1]
30	If $12x + 17y = 53$ and $17x + 12y = 63$ then find the value of $(x + y)$.	[1]
31	Find the value(s) of k so that the pair of equations $x + 2y = 5$ and $3x + ky + 15 = 0$ has a unique solution. CBSE (2024)	[1]
32	Check whether the pair of equations $x + 3y = 6$, $2x - 3y = 12$ is consistent.	[1]
33	Graphically, find whether the following pair of equations has no solution, unique solution or infinitely many solutions: $5x - 8y + 1 = 0$; ... (i) $3x - \frac{24}{5}y + \frac{3}{5} = 0$... (ii)	[1]
34	Is $(x, 0)$ a point on the x - axis? Give reason. CBSE (2018)	[1]
35	In the figure given below, ABCD is a rectangle. Find the values of x and y. 	[2]
36	Taxi charges in a city consist of fixed charges and the remaining depending upon the distance travelled in kilometres. If a person travels 60 km, he	[2]

	pays ₹ 960, and for travelling 80 km, he pays ₹ 1260. Find the fixed charges and the rate per kilometre.	
37	By the graphical method, find whether the pair of equation is consistent or not. If consistent, solve it. $x - 2y = 6, 3x - 6y = 0$	[2] CBSE (2019)
38	Solve the following system of linear equation by substitution method: $2x - y = 2$...(i) $x + 3y = 15$(ii)	[2]
39	Does the pair of the linear equation have no solution? Justify your answer. $2x + 4y = 3, 12y + 6x = 6$	[2]
40	Solve the following pair of equations by substitution method: $7x - 15y = 2$...(1) $x + 2y = 3$...(2)	[2] CBSE (2020)
41	A man purchased 47 stamps of 20 p and 25 p for ₹ 10. Find the number of each type of stamps.	[2]
42	Solve the system of equations by using the method of substitution: $3x - 5y = -1$ $x - y = -1$	[2] CBSE (2023)
43	Find the condition for which the system of equations $\frac{x}{a} + \frac{y}{b} = c$ and $bx + ay = 4ab$ ($a, b \neq 0$) is inconsistent.	[2]
44	Do the equations $3x + \frac{1}{7}y = 3$ and $7x + 3y = 7$ represent a pair of coincident lines? Justify your answer.	[2]
45	A man sold a chair and a table together for ₹ 1520 thereby making a profit of 25% on the chair and 10% on table. By selling them together for ₹ 1535 he would have made a profit of 10% on the chair and 25% on the table. Find the cost price of each.	[3] CBSE (2018, 2021)
46	A wizard having powers of mystic in conditions and magical medicines seeing a cock, fight going on, spoke privately to both the owners of cocks. To one he said; if your bird wins, than you give me your stake - money, but if you do not win, I shall give you two third of that'. Going to the other, he promised in the same way to give three fourths. From both of them his gain would be only 12 gold coins. Find the stake of money each of the cock - owners have.	[3]
47	Find the solution of the pair of equations $\frac{x}{10} + \frac{y}{5} - 1 = 0$ and $\frac{x}{8} + \frac{y}{6} = 15$. Hence, find λ , if $y = \lambda x + 5$.	[3] CBSE (2019)
48	The coach of a cricket team buys 7 bats and 6 balls for ₹ 3800. later, she buys 3 bats and 5 balls for ₹ 1750. Find the cost of each bat and each ball by substitution method.	[3]

49	Check graphically whether the pair of equations $x + 3y = 6$ and $2x - 3y = 12$ is consistent. If so, solve them graphically.	[3]
50	Solve the system of equations: $3x - 7y + 10 = 0$ $y - 2x - 3 = 0$	CBSE (2020) [3]
51	Determine by drawing graphs, whether the following pair of linear equations has a unique solution or not: $3x + 4y = 12$; $y = 2$.	[3]
52	Solve the system of equation graphically: $3x + 2y = 14$, $x - 4y = - 7$	[3]
53	Determine graphically the coordinates of the vertices of the triangle, the equation of whose sides are $y = x$, $3y = x$ and $x + y = 8$.	CBSE (2024) [3]
54	Solve for x and y: $6x + 5y = 7x + 3y + 1 = 2(x + 6y - 1)$.	[3]
55	When 3 is added to the denominator and 2 is subtracted from the numerator a fraction becomes $\frac{1}{4}$. When 6 is added to numerator and denominator is multiplied by 3, fraction becomes $\frac{2}{3}$. Find the fraction.	[5]
56	Show graphically that the system of equations $3x - y = 2$ $9x - 3y = 6$ has infinitely many solutions.	CBSE (2020, 2023) [5]
57	Solve the system of equation $2x - 3y + 13 = 0$, $3x - 2y + 12 = 0$ graphically.	CBSE (2019) [5]
58	A train covered a certain distance at a uniform speed. If it were 6 km/h faster, it would have taken 4 hours less than the scheduled time. And, if the train were slower by 6 km/h, it would have taken 6 hours more than the scheduled time. Find the length of the journey.	[5]
59	Solve the following system of equations graphically $x + 3y = 6$ $2x - 3y = 12$ and hence find the value of a, if $4x + 3y = a$.	[5]
60	Solve system of equations:	[5]

	$x + 2y = \frac{3}{2}$ $2x + y = \frac{3}{2}$	
61	<p>Draw graph of the equation $2x + y = 7$. From your graph find . CBSE(2020)</p> <ol style="list-style-type: none"> 1. whether the point (3, 4) lies on the graph. 2. if $x = 3, y = 1$ is a solution of the equation. 3. the value of x when $y = -1$. 4. the value of y when $x = -1$. 	[5]
62	A two - digit number is 4 more than 6 times the sum of its digits. If 18 is subtracted from the number, the digits are reversed. Find the number.	[5]
63	Meena went to a bank to withdraw ₹ 2000. She asked the cashier to give her ₹ 50 and ₹ 100 notes only. Meena got 25 notes in all. Find how many notes of ₹ 50 and ₹ 100 she received. Solve the pair of the linear equation obtained by the elimination method.	[5]
64	<p>Susan invested certain amount of money in two schemes A and B, which offer interest at the rate of 8% per annum and 9% per annum, respectively. She received ₹ 1860 as annual interest. However, If she had interchanged the amount of investment in the two schemes, she would have received ₹ 20 more as annual interest. How much money did she invest in each scheme?</p> <p style="text-align: center;">CBSE (2023)</p>	[5]