* LINEAR EQUATION *

* Express in standard form: [LEVEL - 1]

(a) $-2x + 3y = 12$

(b) $x - \frac{y}{2} - 5 = 0$

(c) $\frac{x}{2} - \frac{y}{3} = 5$

(d) $x = 2y$

(e) $2y - 3 = \sqrt{2}x$

(f) $y - 5 = 0$

(g) $2x + 3y = 9.3\overline{5}$

(h) $3x = -7$

(i) $2x + 3 = 0$

* Write the following as an equation in two variables:-

(a) $5x = \frac{7}{2}$ (b) $y = \frac{3}{2}x$ (c) $x = -3$ (d) $7y = 3$

* Write five solutions each for following:-

(a) $x + \pi y = 4$ (b) $\frac{2}{3}x - y = 4$ (c) $x = 6y$ (d) $3x + 4y = 7$

* Find value of k:-

(a.) if $x = -k$ and $y = \frac{5}{2}$ are soln of $x + 4y - 7 = 0$.

(b.) if $x = k^2$ and $y = k$ is a soln of $x - 5y + 6 = 0$.

(c.) if $x = 2k - 1$ and $y = k$ is a soln of $3x - 5y - 7 = 0$.

(d.) if $x = 2k + 1$ and $y = k - 1$ is a soln of $2x - 3y + 5 = 0$.

(e) if $x = 1$ and $y = 6$ is a soln of $8x - ky + k^2 = 0$.

(f.) if $x = -1$ and $y = 2$ is a soln of $3x + 4y + k = 0$.

* check which of the following are soln of $2x - y = 6$

(a) $(3, 0)$ (b) $(0, 6)$ (c) $(2, -2)$ (d) $(\sqrt{3}, 0)$ (e) $(\frac{1}{2}, -5)$

* Draw graph of following:-

(i.) $x = 0$

(ii) $y = 0$

(iii) $x = -6$

(iv.) $x = -4$

(v) $x = 3/2$

(vi) $x = 4/3$

(vii) $x = -3/4$

(viii) $y = 3/4$

(ix) $y = -3/4$

(x) $y - x = 2$

(xi) $2x + y = 3$

(xii) $x - 2y = 3$

(xiii) $x = y$

(xiv) $x = -y$

(xv.) $\frac{x-2}{3} = y - 3$

(xvi) $\frac{x}{2} - \frac{y}{3} = 2$

(xvii) $y = 2x$

(a) $y = x$ and $y = -x$

(b) $3x - 2y = 4$ and $x + y - 3 = 0$

(c) $x - y = 1$ and $2x + y = 8$

(d.) $2x + y = 6$ and $2x - y + 2 = 0$

(e) $y = |x|$

(f) $y = 2|x|$

(g) $y = |x| + 2$

(h.) $2x + 4 = 3x + 1$

(i) $2y + 3 = 9$

LINEAR EQUATION

[LEVEL-2]

* Numericals

(1.) The taxi fare in a city is as follows. For the first km, the fare is Rs 8, for the subsequent distance it is Rs 5 per km. Taking the distance covered as x km and total fare as Rs. y. write a linear eqⁿ for this inf. and draw graph.

(2.) work done by a body on application of a constant force is directly proportional to the distance travelled by the body, express this in the form of an eqⁿ in two variables and draw the graph of the same by taking the constant force as 5 units. Also find the work done when distance travelled by the body is :-

(a) 6 km (b) 2 km (iii) 0 km

(3.) Relation b/w temperature on degree scale and Farenheit scale is :- $F = \left(\frac{9}{5}\right)C + 32$

(a) Draw graph of the linear eqⁿ having celsius values on x-axis and Farenheit on y-axis.

(b.) If temp. is 95°F, then value on celsius scale = ?

(c.) If temp is 0°C, then value on Farenheit scale = ?

(d) Temperature for which values on Farenheit scale and celsius scale are numerically equal.

(4.) Ramesh tells his daughter Aarushi, "seven years ago, I was seven times as old as you were then. Also, three years from now, I shall be three times as old as you will be". If present ages of Aarushi and Ramesh are x and y years. respectively. Represent this situation algebraically as well as graphically.

(5.) Aarushi was driving a car with uniform speed of 60 km/h. Draw distance time graph. From the graph, find the distance travelled by Aarushi in

(i) 2½ hours (ii) ½ hour

LINEAR EQUATION
(LEVEL-3)

* Mixed.

(1.) (i.) Draw the graph of $4x + 3y = 24$.
(ii.) write the coordinates of points where this line intersects the x-axis and y-axis.
(iii.) use this graph to find area of the triangle formed by the line and the coordinate axes.

(2.) Draw the graphs of $2x + y = 6$ and $2x - y + 2 = 0$. Shade the region bounded by these lines and x-axis. Find the area of the shaded region.

(3.) Draw the graphs of following and find the coordinates of the points where the graph cuts the coordinate axes:
(a) $2x + 3y = 12$ (b) $-x + 4y = 8$ (c) $3x + 2y + 6 = 0$

(4.) Solve the eq^n and represent the sol^n on number line as well as on the cartesian plane:-
(i) $2x + 1 = x - 3$ (iii) $x + 5 = 0$ (v.) $3x + 2 = x - 8$
(ii) $2x + 4 = 3x + 1$ (iv) $2x + 13 = 0$ (vi.) $y = 3$

(5.) Write the eq^n of the line that is to x axis and passing through:-
(i) (0, 3) (ii) (-3; 0) (iii) (3, 4) (iv) (2, -5) (v) (0, 0)

(6.) write eq^n of the line that is to y-axis and passing through
(i.) (4, 0) (iii) (3, 5) (v) (0, 3) (vii) (5, -5)
(ii.) (-2, 0) (iv) (-4, -3) (vi) (0, 0) (viii) (-8, 6)

* Fill in the blanks

(1.) Eq^n of x axis is _____.
(2.) Eq^n of y-axis is _____.
(3.) Eq^n of a line through (0, 4) and parallel to x axis is _____
(4.) Eq^n of a line making equal angles with x-axis and y-axis is _____ and _____.
(5.) Eq^n of a line passing through (-3, -7) and parallel to y-axis is _____

* MCQ's

LINEAR EQUATION

(LEVEL-0)

(1.) $(a, 4)$ lies on $3x + y = 10$, then $a = ?$

(2.) The graph of linear eqⁿ $2x - y = 4$ cuts the x-axis at —

(3.) No. of linear eqⁿ satisfied by $x = 2$ and $y = -3$

(4.) $x - 2 = 0$ represents —

(5.) If $(2k-1, k)$ is a solⁿ of $10x - 9y = 12$. Then $k = ?$

(6.) Distance b/w graphs of eqⁿ $x = -3$ and $x = 2$ is —

(7.) $x = 2$, $y = -1$ is a solⁿ of :-

(a) $x + 2y = 0$ (b) $x + 2y = 4$ (c) $2x + y = 0$ (d) $2x + y = 5$.

(8.) If $4x + 3y = 12$ cuts the coordinate axes at A and B, then hypotenuse of right $\triangle AOB$ is of length —.

(9.) Which of the following is/are linear eqⁿ in two variable :-

(a) $2x + 3 = 0$

(b) $2y + 3 = 0$

(c) $\sqrt{2}x + 3 = 0$

(d) $2\sqrt{x} + 3 = 0$

(e) $2x + \sqrt{3} = 0$

(f) $(2x+3)^2 = (2y+3)^2$

(g) $(2x+3)^2 = (2x-3)^2$

(h) $(x+3)^2 + (x-3)^2 = 0$

(i) $(x+3)^2 + (x-3)^2 \neq (2x+3)^2$

(j) $(x+2)^3 = (x-2)^3$

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