

Problems:

Do the following eqns represent a line?

1. $2y + 4x = 1$ Yes

5. $4y^3 - x = 1$ No.

5. $y^2 = x - 5$ No.

7. $\frac{y}{8} = -2$ Yes

9. $\frac{y}{2} = \frac{x}{5} + 1$ Yes

11. $x = -104$ Yes

13. $\frac{4}{x} + 2 = y$ No.

15. $4xy = 8$ No

To write equations in standard form

17. $y + 5 = -x$
 $= y = -x - 5$

19. $y = -\frac{2}{3}x + 1$ it is in standard form

21. $\frac{5}{6}y - \frac{1}{2}x - 4 = 0$

Soln.

$$\left(\frac{5}{6}y - \frac{1}{2}x - 4\right) \times 6$$

$$5y - 3x = 24$$

$$\frac{5y}{5} = \frac{3x + 24}{5}$$

$$y = \frac{3}{5}x + \frac{24}{5}$$

23. Graph

$$4y - 2x = 3$$

$$\frac{4y}{4} = \frac{2x + 3}{4}$$

$$y = \frac{1}{2}x + \frac{3}{4} \quad (0, \frac{3}{4}) \quad (-\frac{3}{2}, 0)$$

25. Graph

$$2x + 3y = -1$$

$$\frac{3y}{3} = \frac{-2x - 1}{3}$$

$$y = -\frac{2}{3}x - \frac{1}{3}$$

Coordinates: $(0, -\frac{1}{3}) \quad (-\frac{1}{2}, 0)$

29. $x - 3y = 2$ (Graph.)

$$-3y = -x + 2$$

$$y = \frac{x}{3} - \frac{2}{3}$$

Coord. $(0, -\frac{2}{3}) \quad (2, 0)$

27. Graph

$$2x = y - 2$$

$$y = 2x + 2$$

$$(0, 2) \quad (-1, 0)$$

31. Graph

$$y = 5$$

Coordinates $(0, 5)$

Graph.

36. $y = -3$

Coordinates $(0, -3)$

Graph.

35. $x + 3 = 1$

$x = -2$

Cord = $(-2, 0)$

37. Graph.

$x - 7 = -1$

$x = -1 + 7$

$x = 6$. Cord = $(6, 0)$

find the intercepts.

39. x -Intercept = $(-1, 0) \rightarrow -1$

y -Intercept = $(0, -2) \rightarrow -2$

Intercepts.

41. x -Intercept = $(3, 0) \rightarrow 3$

y -Intercept = $(0, 2) \rightarrow 2$

Intercepts of the curve.

43. x -Intercepts = $(-4, 0)$ & $(2, 0)$

$\rightarrow -4$ and 2 .

y -Intercepts = $(0, -3) \rightarrow -3$

find slope.

45. Cord = $(0, 0)$, $(2, 1)$

Gradient = $\frac{1-0}{2-0} = \frac{1}{2}$

slope = $\frac{1}{2}$

47. find slope.

coordinates $(3, 0)$ and $(0, 3)$

grad. = $\frac{\Delta y}{\Delta x} = \frac{3-0}{0-3} = \frac{3}{-3} = -1$

find the slope

49. Coordinates ~~$(2, 1)$ and $(-2, 3)$~~
 $= (4, 1)$ and $(-2, 3)$

grad = $\frac{\Delta y}{\Delta x} = \frac{-3-1}{-2-4} = \frac{-4}{-6} = \frac{+2}{3}$

Slope.

51. Coordinates $y = 3$

gradient/slope = 0

slope

53. Coordinates

$(0, 0)$ & $(4, 3)$

Gradient = $\frac{\Delta y}{\Delta x} = \frac{-3-0}{4-0} = -\frac{3}{4}$

Slope.

57. Coordinates $(3.5, 0)$

$x = 3.5$

slope = undefined

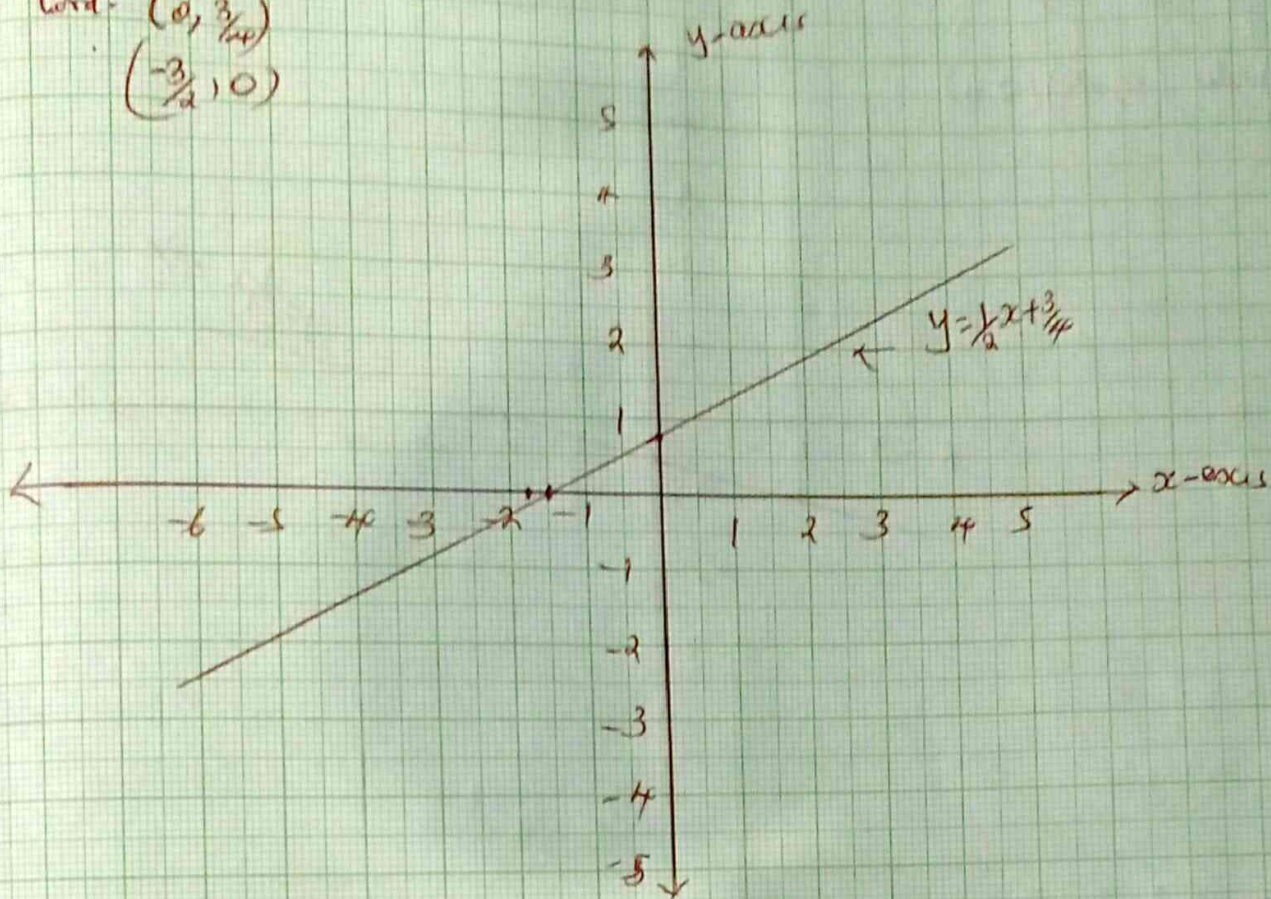
slope.

(57) Coordinates $(1, 1)$ & $(-1, 2)$

slope = $\frac{\Delta y}{\Delta x} = \frac{-2-1}{-1-1} = \frac{-3}{-2} = \frac{3}{2}$

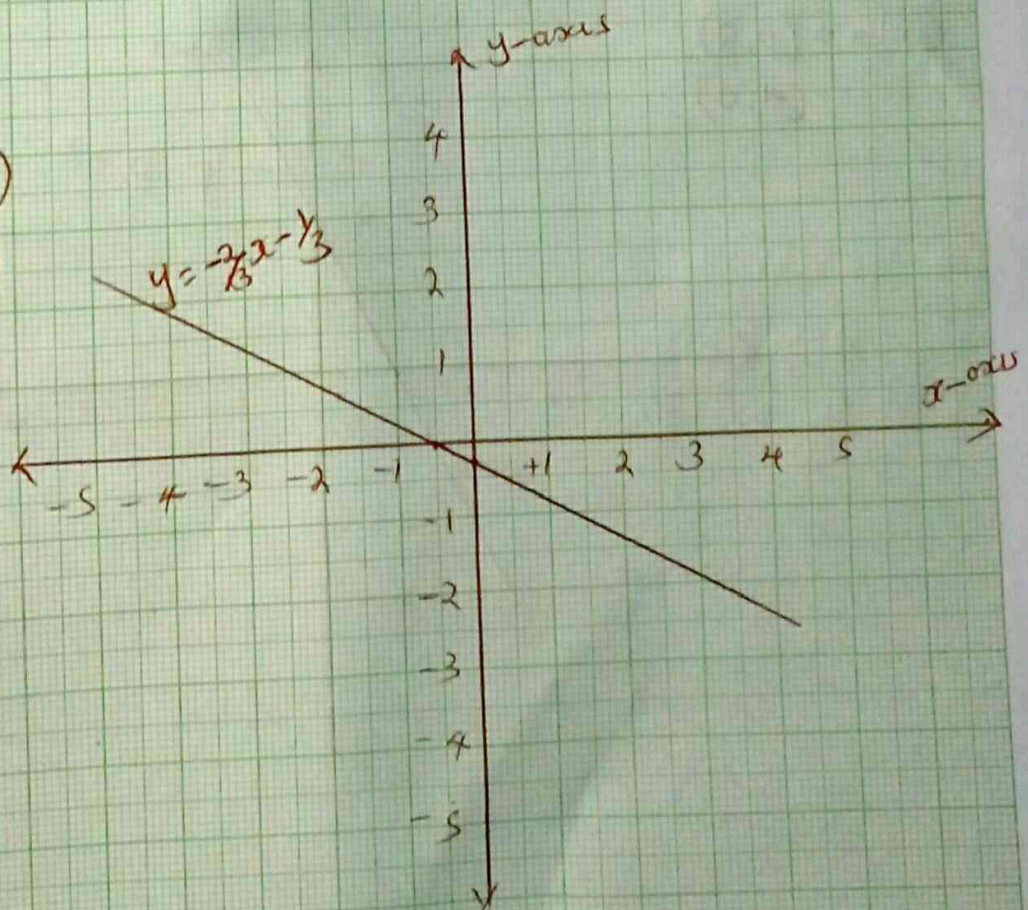
23. Eqn = $y = \frac{1}{2}x + \frac{3}{4}$

Coord. $(0, \frac{3}{4})$
 $(-\frac{3}{2}, 0)$



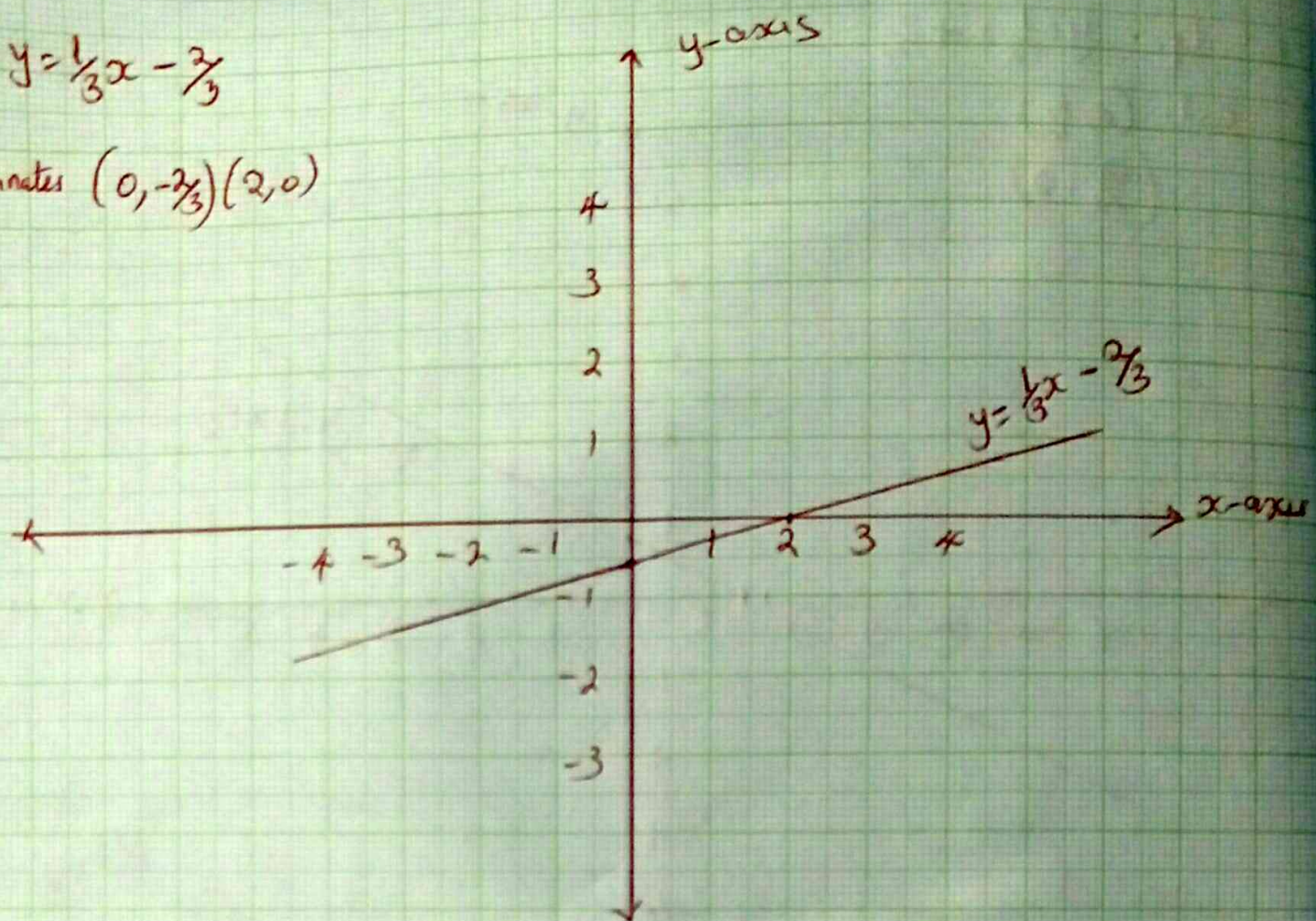
25. Eqn = $y = -\frac{2}{3}x - \frac{1}{3}$

Coordinates $(0, -\frac{1}{3})$
 $(-\frac{1}{2}, 0)$



27. $y = \frac{1}{3}x - \frac{2}{3}$

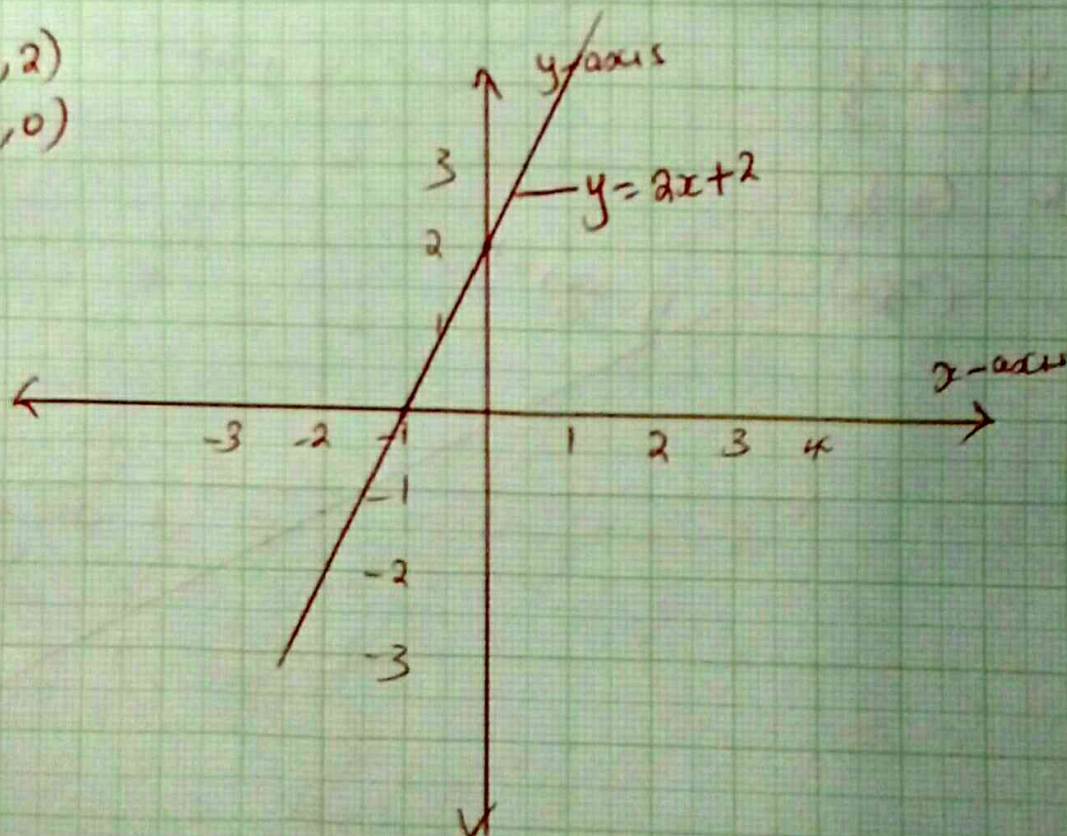
coordinates $(0, -\frac{2}{3}) (2, 0)$



28. $2x = y - 2$

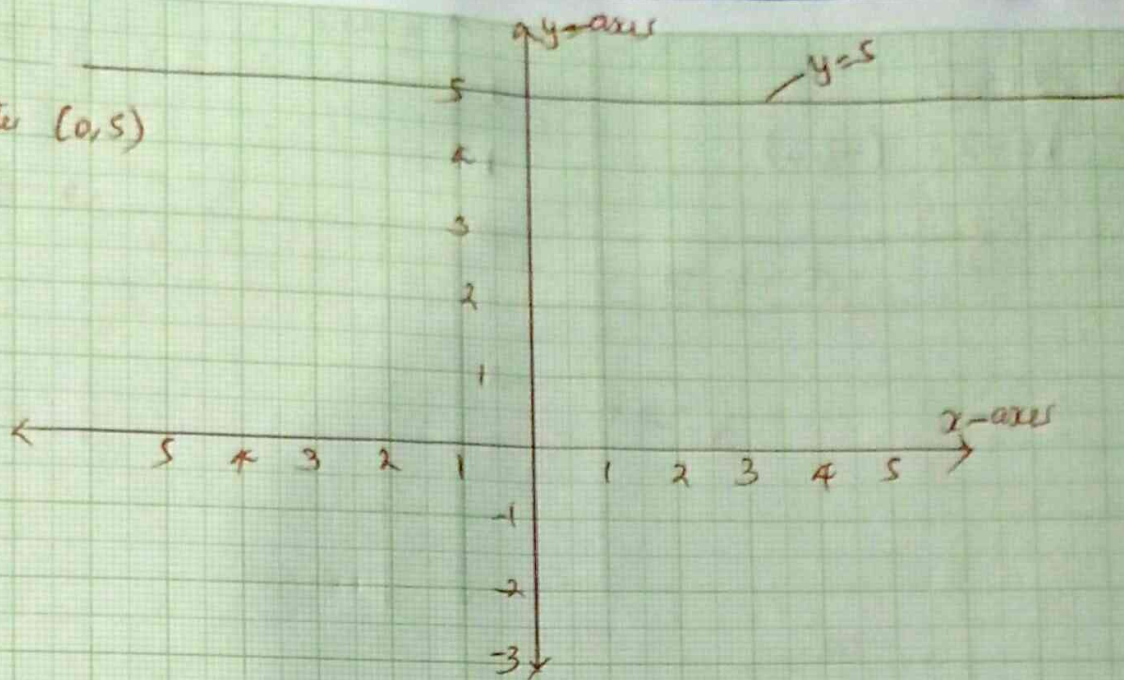
$y = 2x + 2$

ordin = $(0, 2)$
 $(-1, 0)$



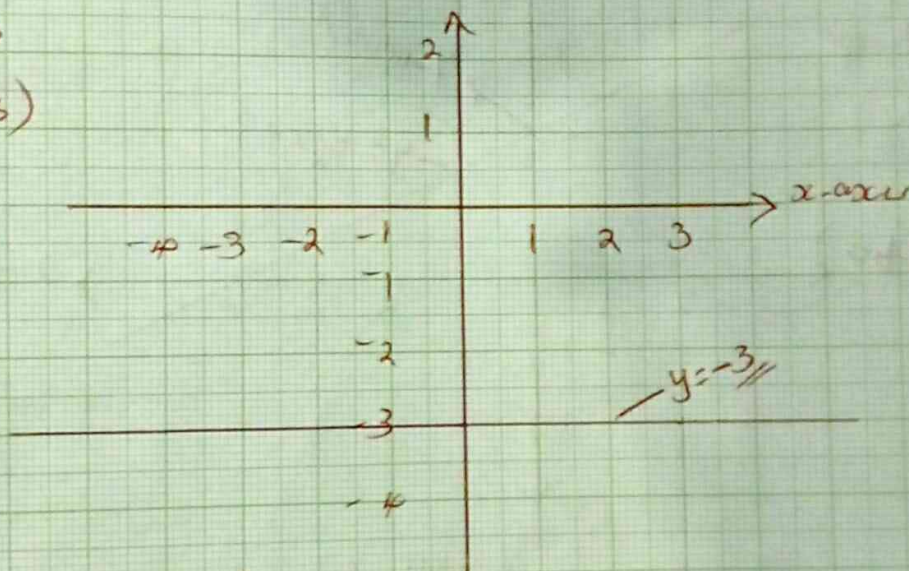
51. $y=5$

Coordinate $(0,5)$



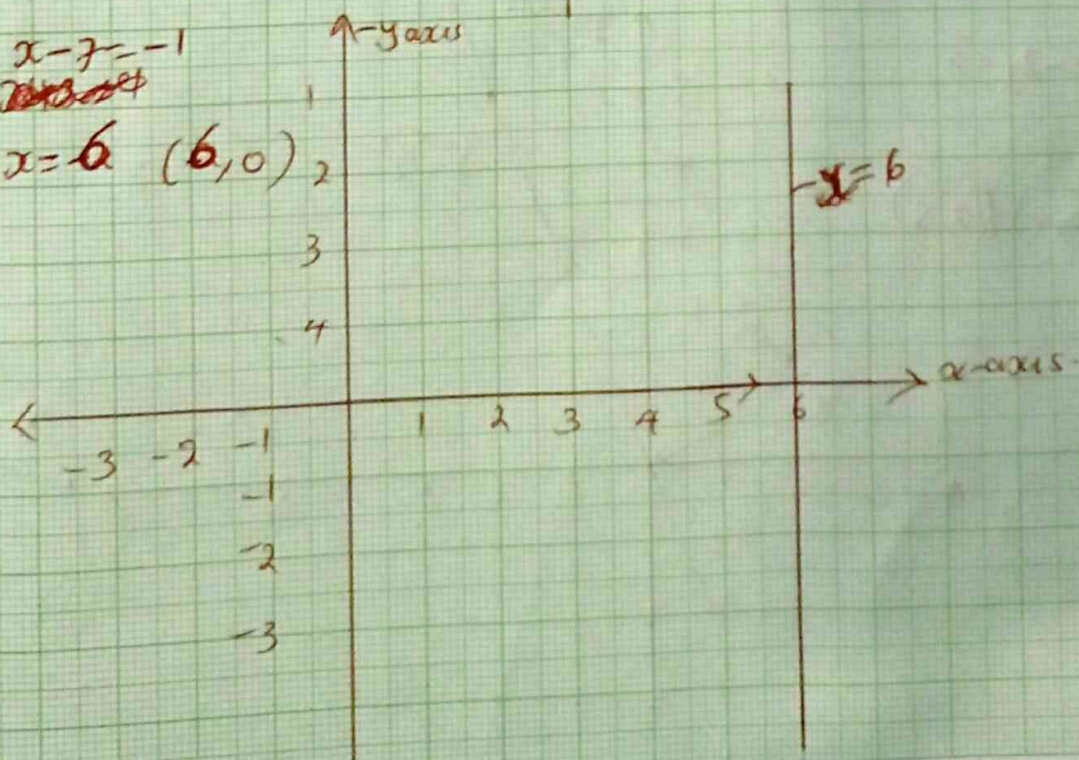
52) $y=-3$

Coord $(0,-3)$



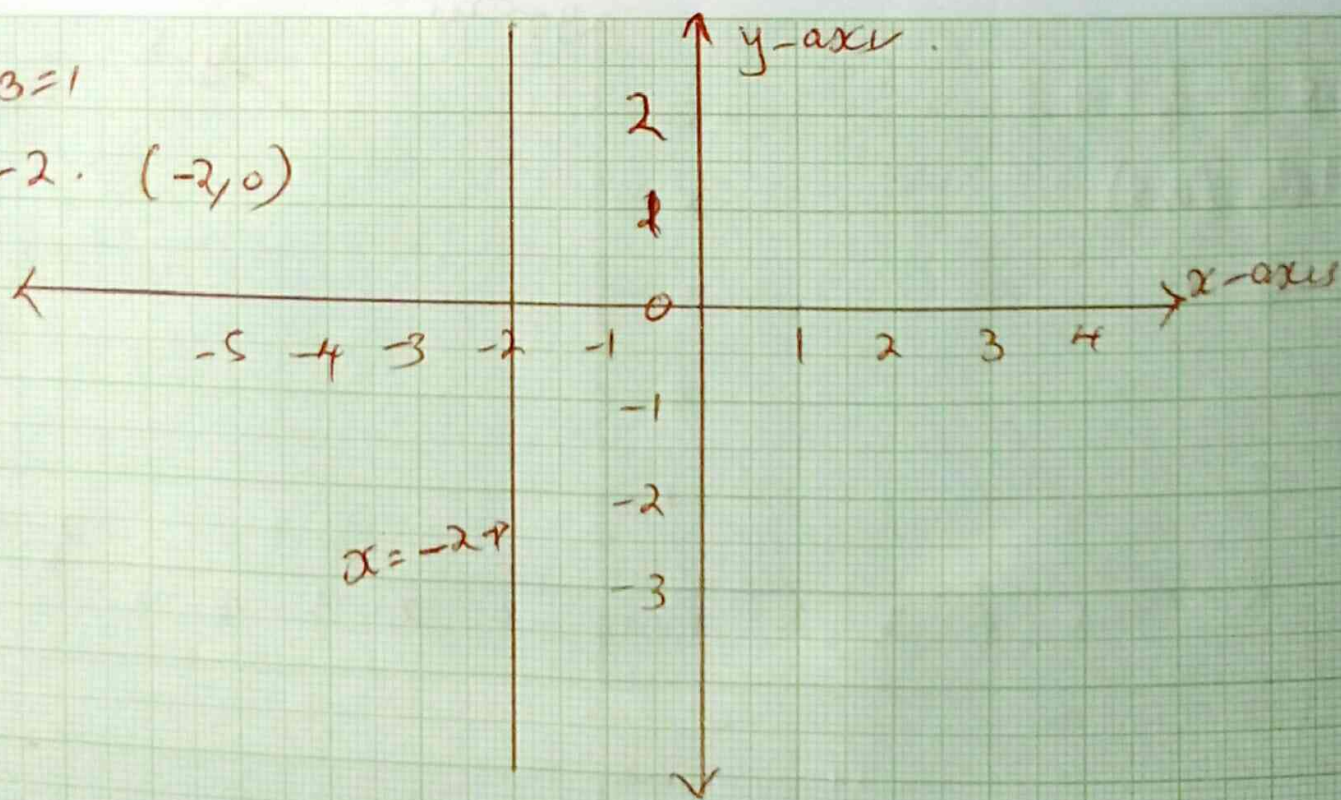
(37) $x-7=-1$

$x=6$ $(6,0)$



35. $2+3=1$

$x = -2$. $(-2, 0)$



Find slope.

61 $(1,0)$ & $(4,-1)$

$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{-1-0}{4-1} = -\frac{1}{3}$$

Slope

(73) Points $(9,1)$ & $(4,1)$

$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{1-1}{4-9} = \frac{0}{-5} = 0$$

63 Slope

Coordinates $(-3,3)$ & $(2,-3)$

$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{-3-3}{2-(-3)} = \frac{-6}{5} = -\frac{6}{5}$$

(75) Slope.

Points $(1,0)$ & $(1,-1)$

$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{-1-0}{1-1} = \frac{-1}{0} = \text{Undefined}$$

65 Slope

Coordinates $(2,0)$ & $(8,-5)$

$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{-5-0}{8-2} = -\frac{5}{6}$$

Slope & y-intercept

(77) Eqn. $0.5x + y = 2$ $y = -\frac{1}{2}(0) + 2$

$$y = \frac{1}{2}x + 2$$

$$\text{slope} = -\frac{1}{2}$$

67 Slope

Points $(5,2)$ & $(1,-4)$

$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{-4-2}{1-5} = \frac{-6}{-4} = \frac{3}{2}$$

y-intercept = $(0,2)$ & $(4,10)$

Slope & y-intercept

(79) Eqn. $5x - 2y = 0$ $-y = \frac{5}{2}(0)$

$$\frac{2y}{2} = \frac{5x}{2} \quad y = \frac{5}{2}x$$

Slope

69. Points $(-3,1)$ & $(-1,-2)$

$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{-2-1}{-1-(-3)} = \frac{-3}{2}$$

Slope = $\frac{5}{2}$

y-intercept = $(0,0)$ $\rightarrow 0$.

Coordinates = $(0,0)$ & $(2,5)$

Slope & y-intercept.

(81) $y = -x - 5$ $\rightarrow y = -1(0) - 5$

$$\text{slope} = -1$$

$$y\text{-intercept} = -5$$

71 Points $(-3,0)$ & $(2,2)$

$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{2-0}{2-(-3)} = \frac{2}{5}$$

Slope & y-intercept.

(83) Eqn. $y = -\frac{5}{6}x + 4$ $\rightarrow y = -\frac{5}{6}(0) + 4$

$$\text{slope} = -\frac{5}{6}$$

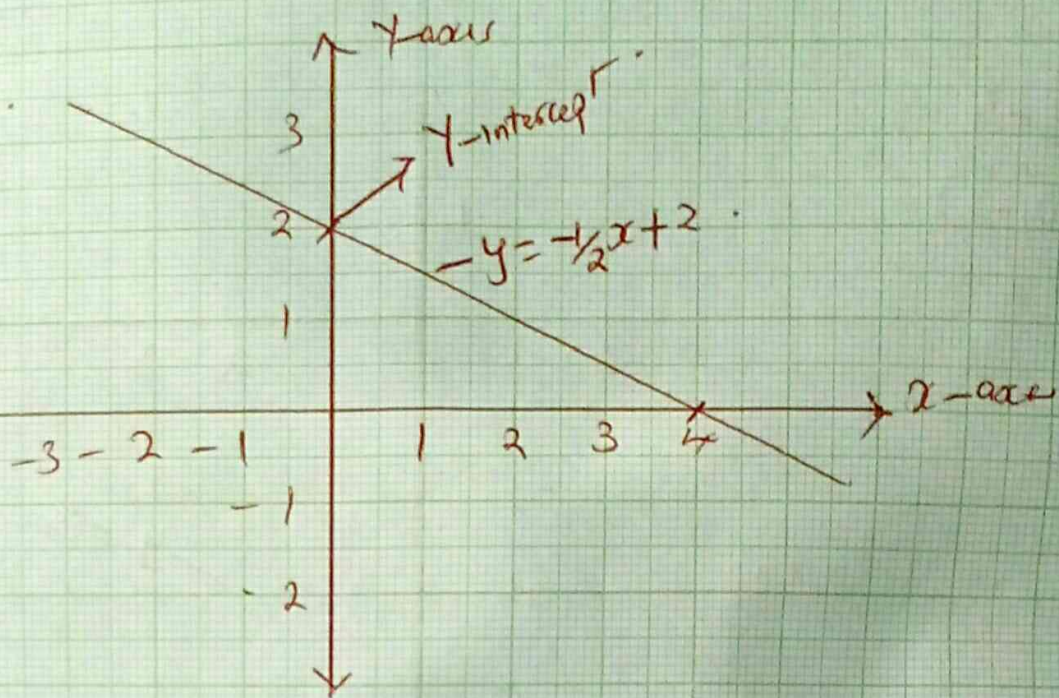
$$y\text{-intercept} = 4$$

(77) Slope & Y-intercept.

Eqn. $y = -\frac{1}{2}x + 2$.

Slope $-\frac{1}{2}$

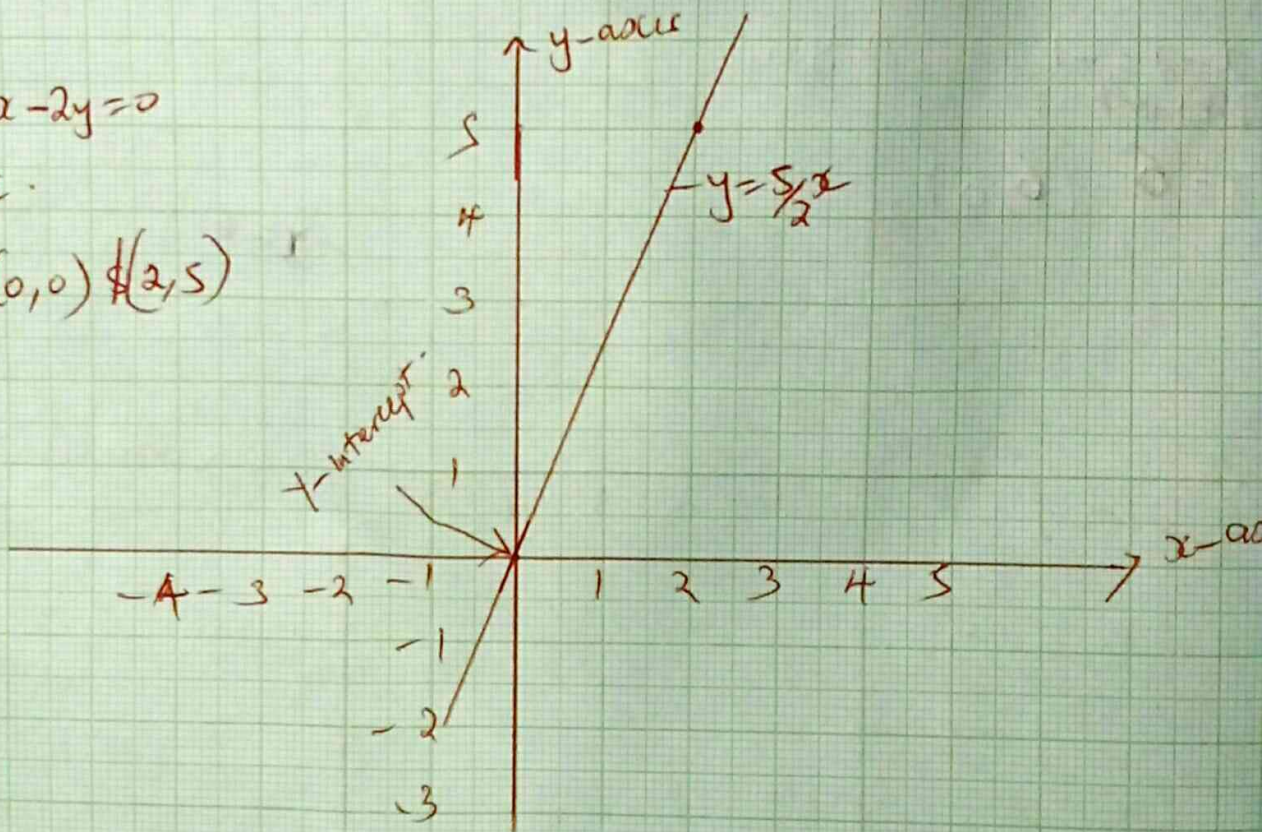
Coordinates $(0, 2)$ & $(4, 0)$



(79) Eqn $= 5x - 2y = 0$

$y = \frac{5x}{2}$

Coordinates $(0, 0)$ & $(2, 5)$



Slope & Y-intercept.

(85) Eqn - $y = 3 - 2x \rightarrow y = 3 - 2(0)$

Slope = -2

Y-intercept = 3

87 Slope & Y-intercept.

Eqn - $2x - 4y = 3$

$$\frac{-4y}{-4} = \frac{-2x+3}{-4}$$

$$y = \frac{1}{2}x - \frac{3}{4} \rightarrow \frac{1}{2}(0) - \frac{3}{4}$$

Slope = $\frac{1}{2}$

Y-intercept = $-\frac{3}{4}$

Slope & Y-intercept.

89. Eqn - $x - 3y + 3 = 0$

$$\frac{-3y}{-3} = \frac{-x-3}{-3}$$

$$y = \frac{x}{3} + 1 \rightarrow \frac{1}{3}(0) + 1$$

Slope = $\frac{1}{3}$

Y-intercept = 1

Slope & Y-intercept.

91 Eqn - $10x - y = -5$

$$\frac{-y}{-1} = \frac{-10x-5}{-1}$$

$$y = 10x + 5 \rightarrow 10(0) + 5$$

Slope = 10

Y-intercept = 5

(93) Slope = -2

Y-intercept = -1 $\rightarrow (0, -1)$

$$\frac{y+1}{x-0} = -2$$

$$y+1 = -2x$$

$$y = -2x - 1$$

Coordinates $(0, -1), (-\frac{1}{2}, 0)$

(95) Slope = $-\frac{1}{2}$

Y-intercept = -2 $\rightarrow (0, -2)$

Eqn -

$$\frac{y+2}{x-0} = -\frac{1}{2}$$

$$2y+4 = -x$$

$$\frac{2y}{2} = \frac{-x-4}{2}$$

$$y = -\frac{x}{2} - 2$$

Coordinates $(0, -2), (-4, 0)$

(97) Slope = -1

Y-intercept = $-\frac{4}{5} \rightarrow (0, -\frac{4}{5})$

$$\frac{y+\frac{4}{5}}{x-0} = -1$$

$$y+\frac{4}{5} = -x$$

$$y = -x - \frac{4}{5}$$

Coordinates = $(0, -\frac{4}{5}), (-\frac{4}{5}, 0)$

97 Slope = $\frac{3}{4}$
 Y-intercept = 2. (0, 2)

$$\text{Eqn} = \frac{y-2}{x-0} = \frac{3}{4}$$

$$4y - 8 = 3x$$

$$\frac{4y}{4} = \frac{3x+8}{4}$$

$$y = \frac{3}{4}x + 2$$

Coordinates = (0, 2), ($\frac{8}{3}$, 0)

Graph by finding Slope

101 & Y-intercept -

$$\text{Eqn} = y = \frac{3}{4}x - 2 \quad - \frac{3}{4}(0) - 2$$

$$\text{Slope} = \frac{3}{4}$$

$$\text{Y-intercept} = -2$$

Coordinates (0, -2), ($\frac{8}{3}$, 0)

Slope & Y-intercept

103 Eqn = $y = -3x - 1$

$$\text{Slope} = -3$$

$$\text{Y-intercept} = -1 \quad (0, -1)$$

Coordinates = (0, -1), ($-\frac{1}{3}$, 0)

Slope & Y-intercept

105 Eqn = $y = \frac{1}{2}x + 2$

$$\text{Slope} = \frac{1}{2}$$

$$\text{Y-intercept} = 2. \quad (0, 2)$$

Coordinates = (0, 2) and (4, 0)

Slope & Y-intercept

(107) Eqn = $2x + 10$

$$\text{Slope} = 2$$

$$\text{Y-intercept} = 10$$

$$0 = 2x + 10 \quad \frac{2x}{2} = \frac{-10}{2} \quad x = -5$$

Coordinates = (0, 10), (-5, 0)

Slope & Y-intercept

(109) Eqn = $y = 5 - 2x$

$$\text{Slope} = -2$$

$$\text{Y-intercept} = 5. \quad (0, 5)$$

$$0 = 5 - 2x$$

$$\frac{2x}{2} = \frac{5}{2} \quad x = \frac{5}{2} \quad (\frac{5}{2}, 0)$$

Coordinates = (0, 5) & ($\frac{5}{2}$, 0)

Graph & Slope (Y-intercept)

(111) $y = -x + 5$

$$\text{Slope} = -1$$

$$\text{Y-intercept} = 5 \quad (0, 5)$$

Coordinates = (0, 5) and (5, 0)

Slope & Y-intercept

(113) Eqn $y = -2x$

$$\text{Slope} = -2$$

$$\text{Y-intercept} = 0 \quad (0, 0)$$

Coordinates (0, 0) and (1, -2)

Slope & Y-intercept.

(115) eqn = $3x - 2y = 5$

$$\frac{-2y}{-2} = \frac{-3x+5}{-2}$$

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

$$\text{Slope} = \frac{3}{2}$$

$$\text{Y-intercept} = (0, -\frac{5}{2})$$

$$\text{Coordinates } (0, -\frac{5}{2}) \text{ and } (\frac{5}{3}, 0)$$

Slope & Y-intercept.

(117) eqn = $3x + 4y = -1$

$$4y = -3x - 1$$

$$y = -\frac{3}{4}x - \frac{1}{4}$$

$$\text{Slope} = -\frac{3}{4}$$

$$\text{Y-intercept} = -\frac{1}{4} \quad (0, -\frac{1}{4})$$

$$\text{Coordinates} = (0, -\frac{1}{4}) \text{ and } (-\frac{1}{3}, 0)$$

Slope & Y-intercept.

(119) eqn = $x + 2y + 3 = 0$

$$\frac{2y}{2} = \frac{-x-3}{2}$$

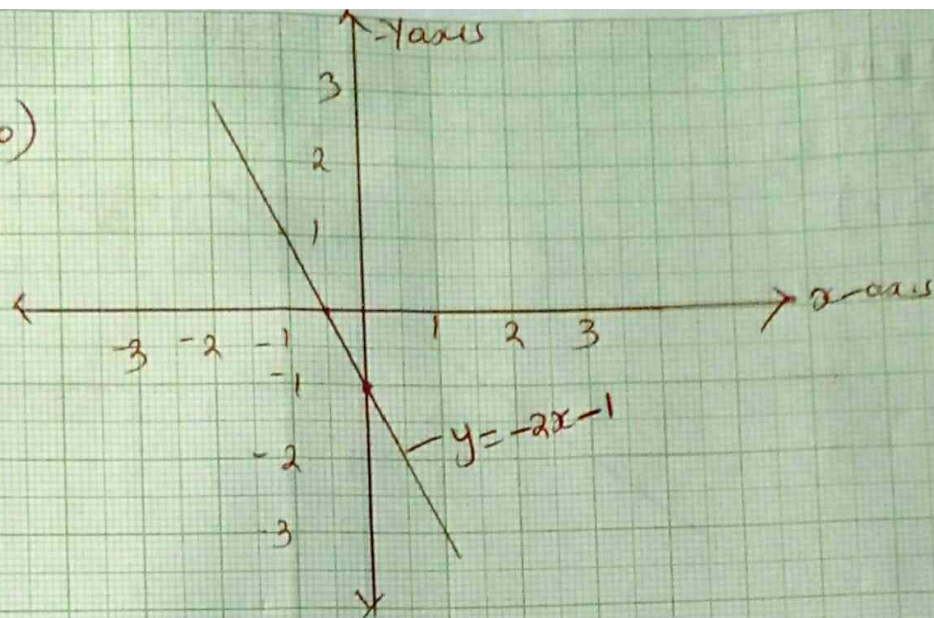
$$y = -\frac{1}{2}x - \frac{3}{2}$$

$$\text{Slope} = -\frac{1}{2}$$

$$\text{Y-intercept} = -\frac{3}{2} \quad (0, -\frac{3}{2})$$

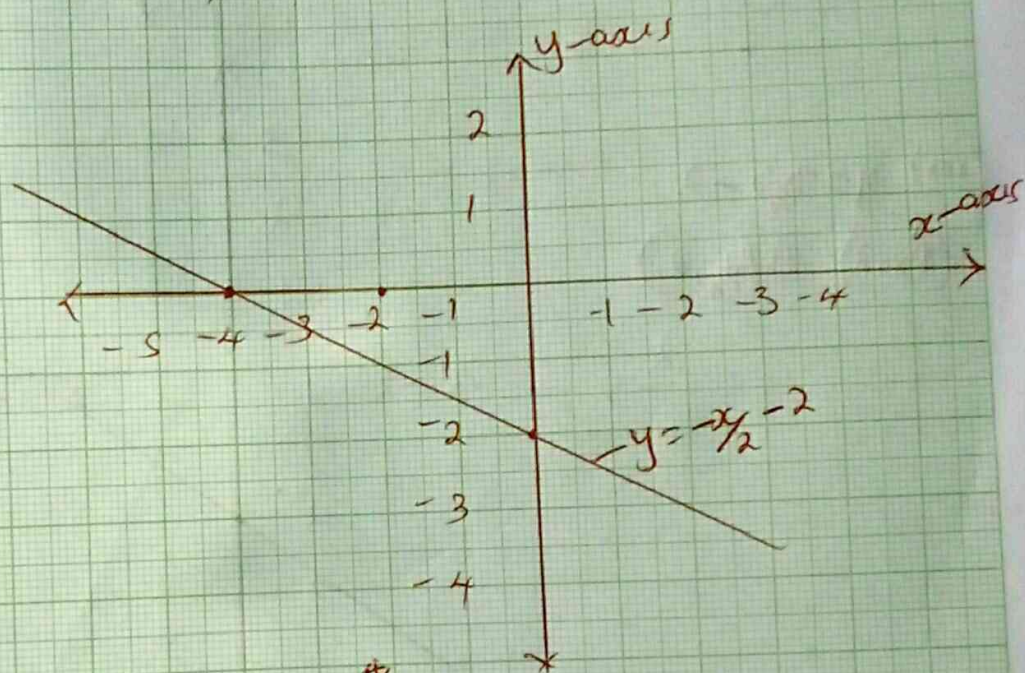
$$\text{Coordinates } (0, -\frac{3}{2}) \text{ and } (-3, 0)$$

(93) $y = -2x - 1$
 coordinates $(0, -1)$ & $(-\frac{1}{2}, 0)$



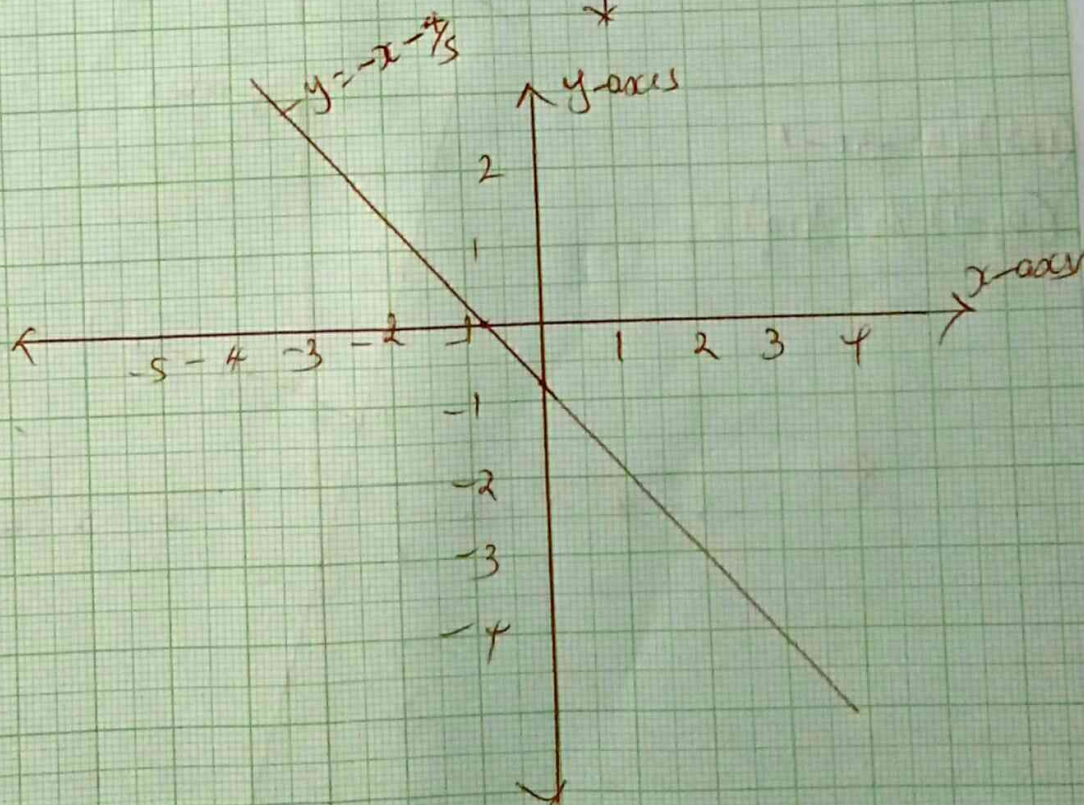
(95) $y = -\frac{x}{2} - 2$

coordinates $(0, -2)$
 $(-4, 0)$

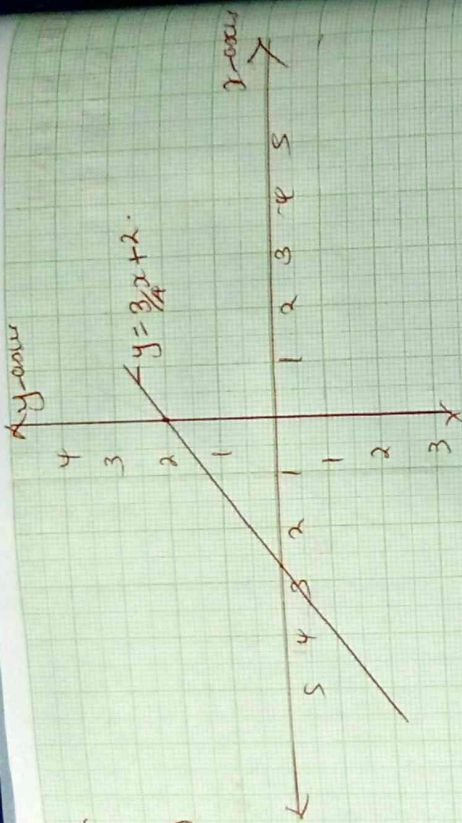


(97) $y = -x - \frac{4}{5}$

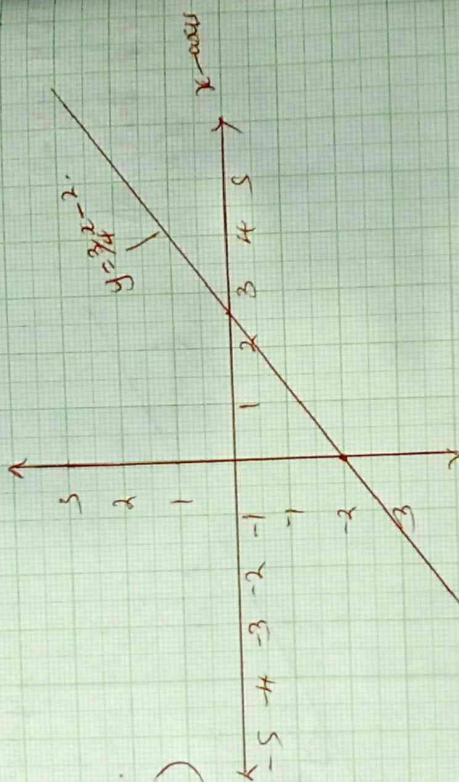
coordinates $(0, -\frac{4}{5})$
 $(-\frac{4}{5}, 0)$



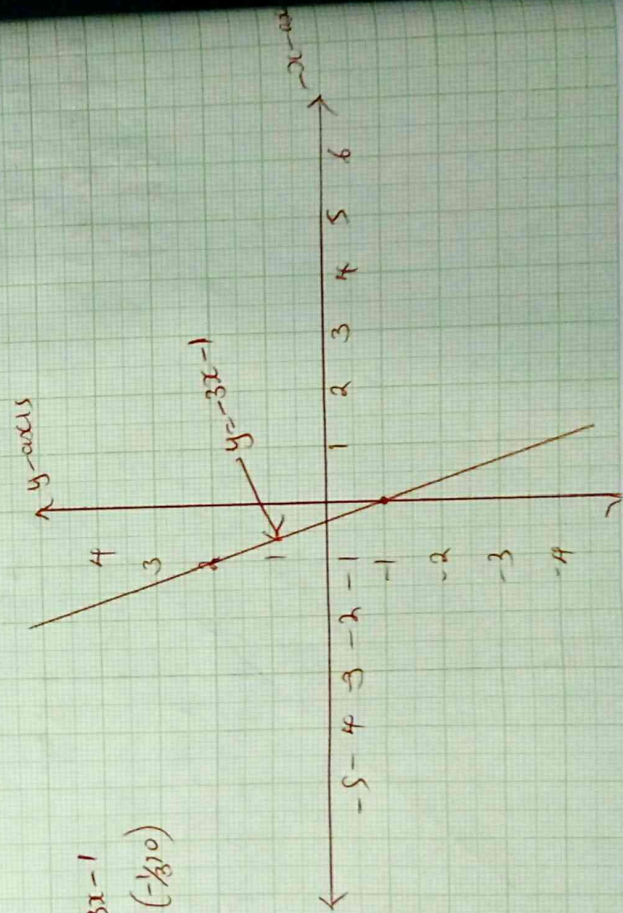
(99) $y = \frac{3}{4}x + 2$
coordinates
 $(0, 2), (-\frac{8}{3}, 0)$



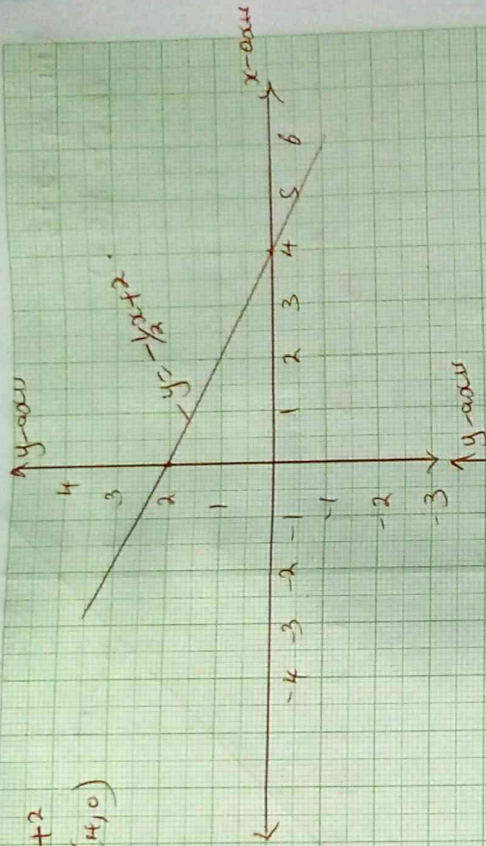
(101) $y = \frac{3}{4}x - 2$
 $(0, -2)$ & $(\frac{8}{3}, 0)$



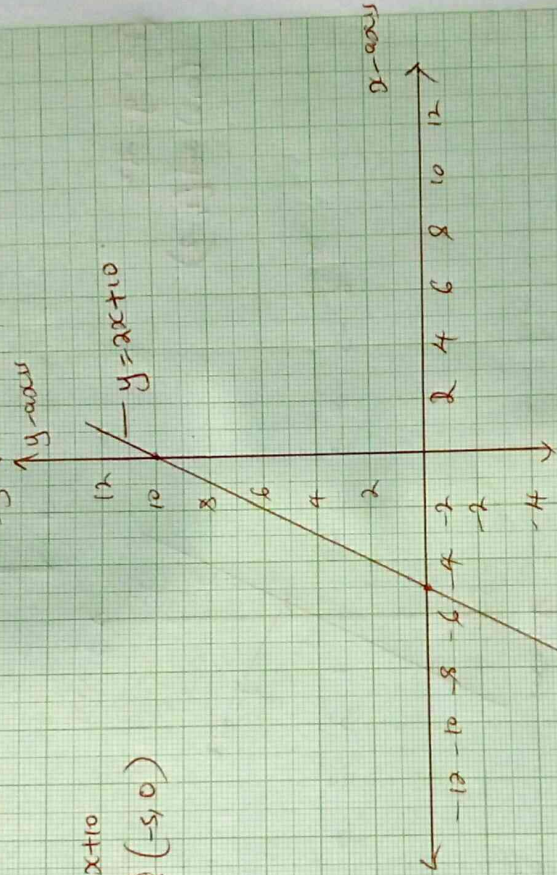
(103) $y = -3x - 1$
 $(0, -1)$ & $(-\frac{1}{3}, 0)$



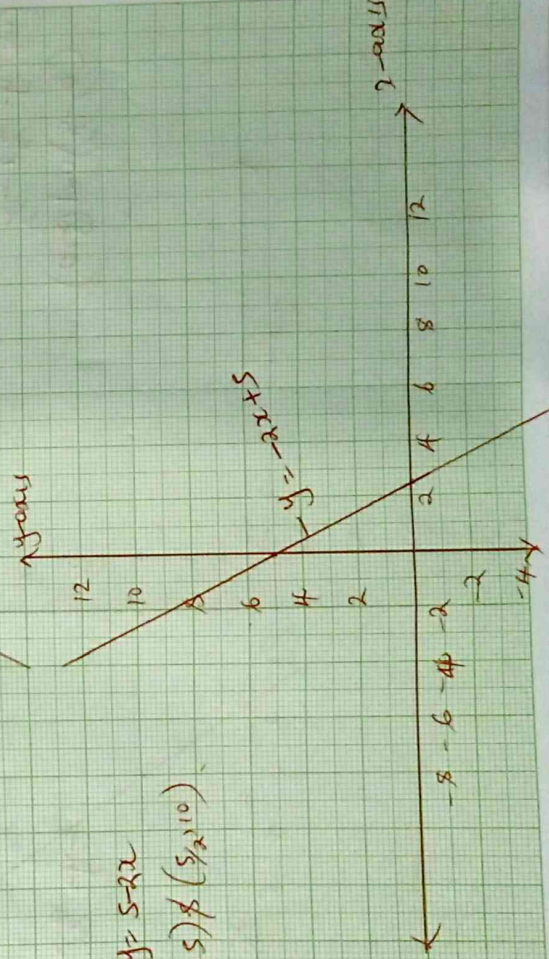
(105) $y = -\frac{1}{2}x + 2$
 $(0, 2)$ and $(4, 0)$



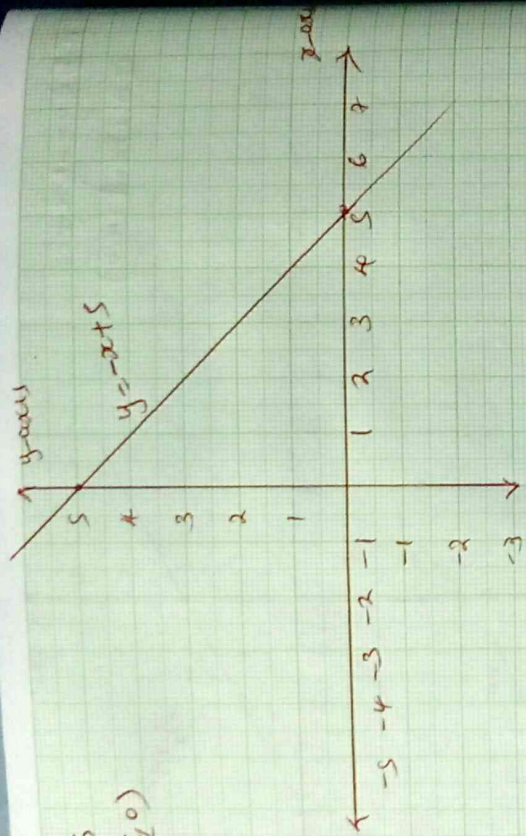
(107) $y = 2x + 10$
 $(0, 10)$ and $(-5, 0)$



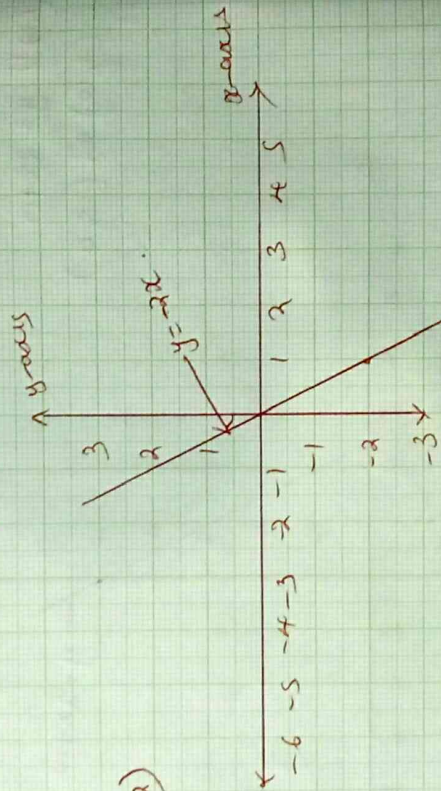
(109) $y = 5 - 2x$
 $(0, 5)$ and $(\frac{5}{2}, 0)$



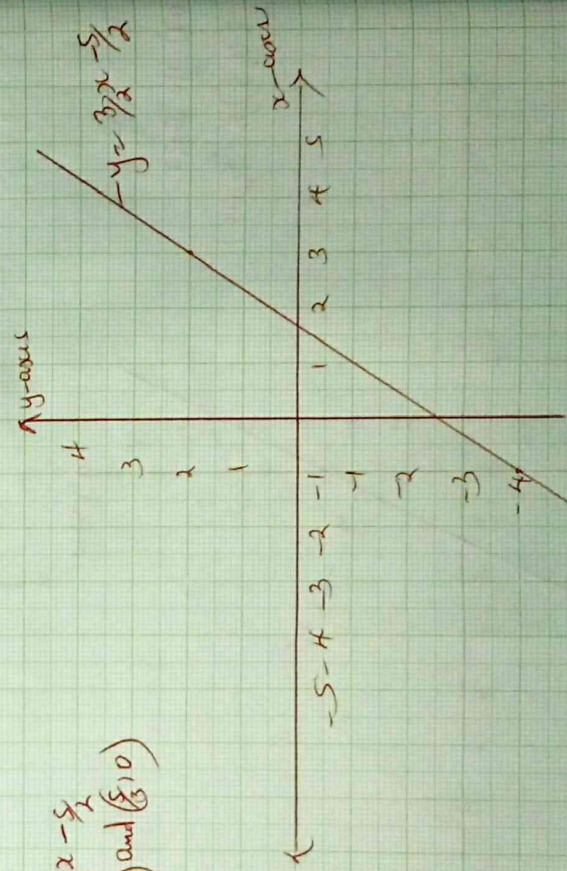
(111) $y = -x + 5$
 $(0, 5)$ and $(5, 0)$



(116) $y = -2x$
 $(0, 0)$ and $(1, -2)$

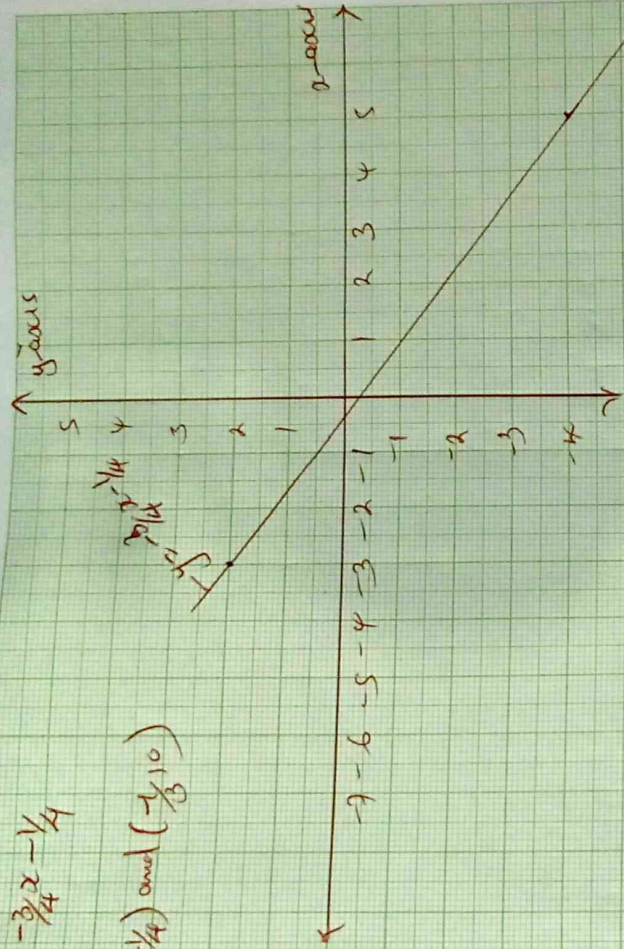


(115) $y = \frac{3}{2}x - \frac{5}{2}$
 $(0, -\frac{5}{2})$ and $(\frac{5}{3}, 0)$



$$(17) y = -\frac{3}{4}x - \frac{1}{4}$$

$$(0, -\frac{1}{4}) \text{ and } (-\frac{1}{3}, 0)$$



$$(19) y = -\frac{1}{2}x - \frac{3}{2}$$

$$(0, -\frac{3}{2}) \text{ and } (-3, 0)$$

