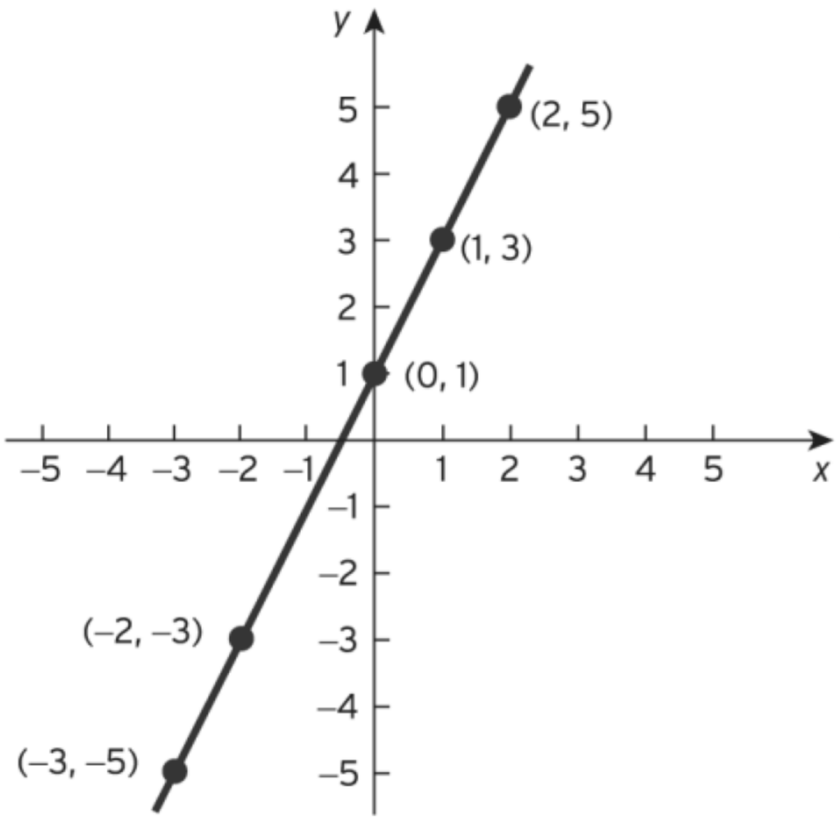
Practice Problem

1. Plot the following points on graph paper. What do you observe?

(2, 5), (1, 3), (0, 1), (−2, −3), (−3, −5)



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observation:- all five points lie on a straight line.

Practice Problem

2. Check that the points

(−1, 2), (−4, 4), (5, −2), (2, 0)

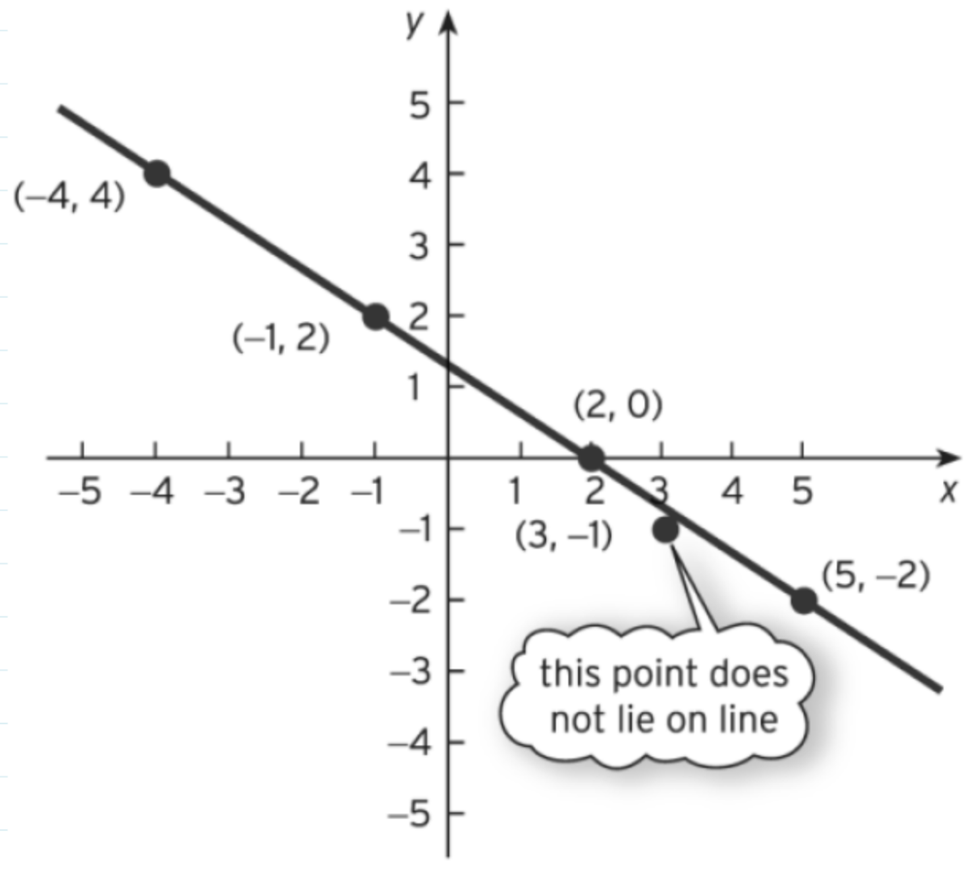
all lie on the line

$2x + 3y = 4$

and hence sketch this line on graph paper. Does the point (3, −1) lie on this line?

Point	Check	
(−1,2)	2(−1) + 3(2) = −2 + 6 = 4	✓
(−4,4)	2(−4) + 3(4) = −8 + 12 = 4	✓
(5, −2)	2(5) + 3(−2) = 10 − 6 = 4	✓
(2,0)	2(2) + 3(0) = 4 + 0 = 4	✓

(3, −1) $2(3) + 3(-1) = 6 - 3 = 3 \neq 4$ ✗ (does not lie on the line)



Practice Problem

3. Find the coordinates of two points on the line

$$3x - 2y = 4$$

by taking $x = 2$ for the first point and $x = -2$ for the second point. Hence sketch its graph.

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$x = 2$

$3(2) - 2y = 4$

$6 - 2y = 4$

$-2y = 4 - 6$

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

$y = 1$

$(2, 1)$

$x = -2$

$3(-2) - 2y = 4$

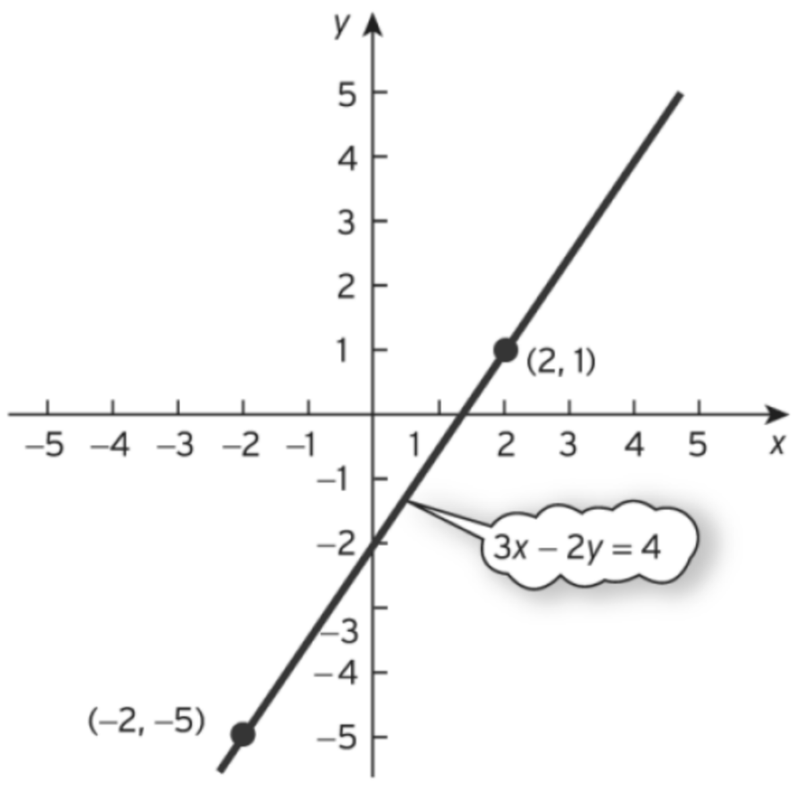
$-6 - 2y = 4$

$-2y = 4 + 6$

$\frac{-2y}{-2} = \frac{10}{-2}$

$y = -5$

$(-2, -5)$



Practice Problem

4. Find the coordinates of the points where the line

$$x - 2y = 2$$

intersects the axes. Hence sketch its graph.

$x = 0$

$-2y = 2$

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

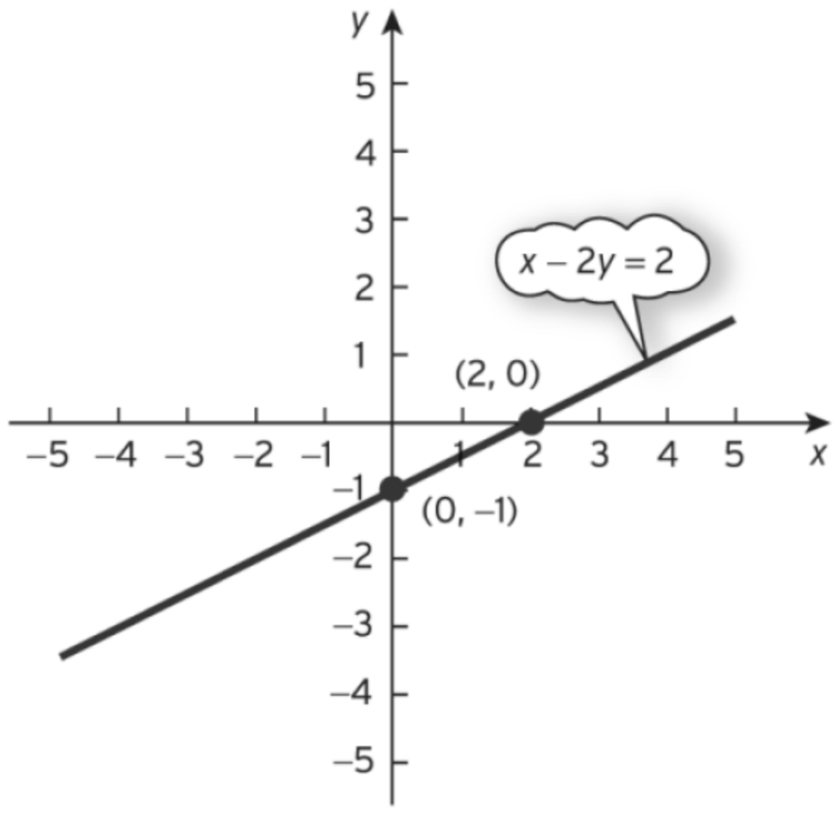
$y = -1$

$(0, -1)$

$y = 0$

$x = 2$

$(2, 0)$

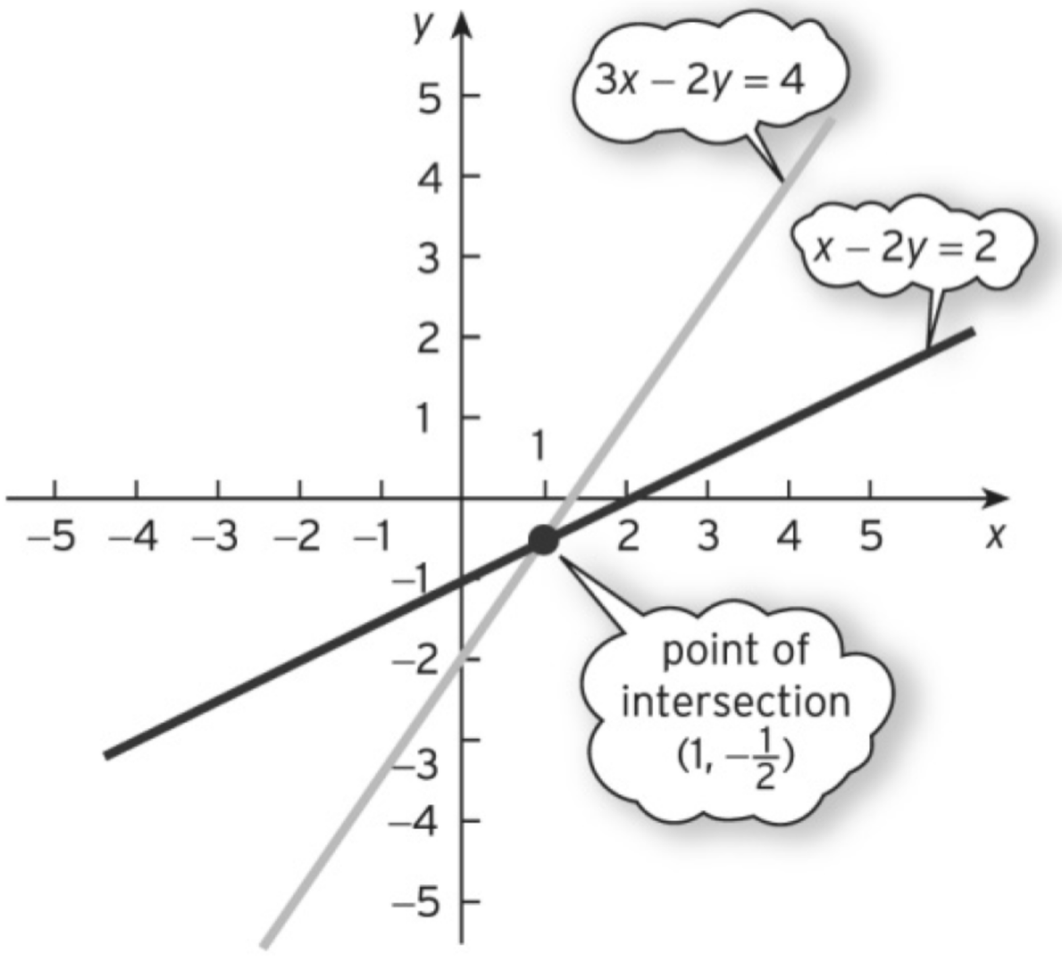


Practice Problem

5. Find the point of intersection of

$$3x - 2y = 4$$
$$x - 2y = 2$$

[Hint: you might find your answers to Problems 3 and 4 useful.]



Practice Problem

6. Use the slope–intercept approach to sketch the lines

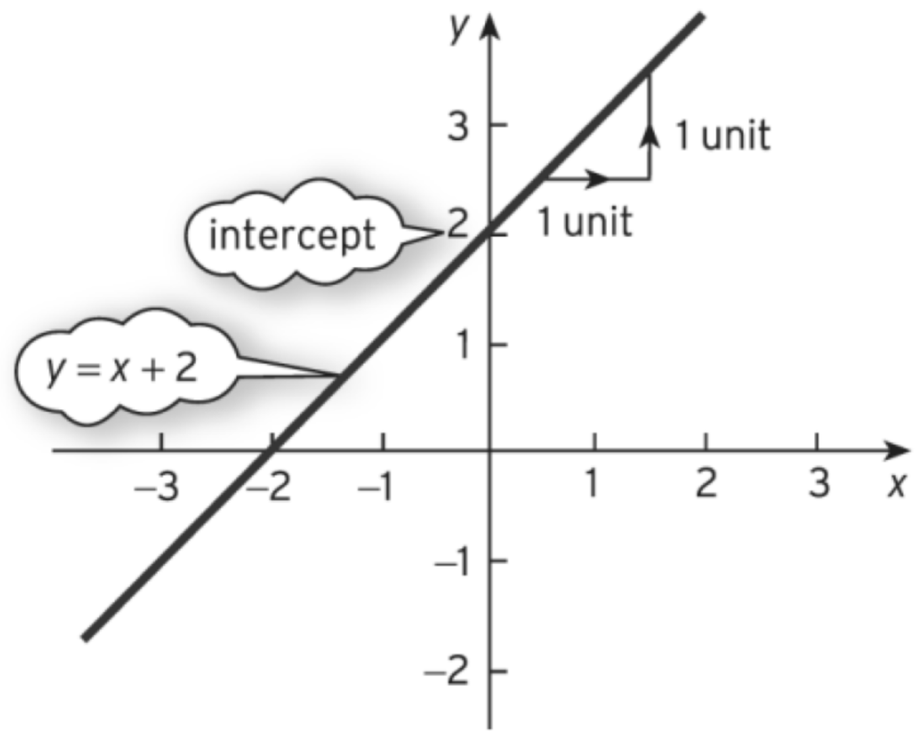
(a) $y = x + 2$

(b) $4x + 2y = 1$

a) $y = x + 2$

Slope: 1

y-intercept: 2



b) $4x + 2y = 1$

$2y = 1 - 4x$

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

Slope: -2

y-intercept: $\frac{1}{2}$