

Name _____

Date _____

Linear Equations in Two Variables

- 1. Is the point $(1, 3)$ a solution to the linear equation $5x - 9y = 32$? Explain.
- 2. Find three solutions for the linear equation $4x - 3y = 1$, and plot the solutions as points on a coordinate plane.

| x | Linear equation: $4x - 3y = 1$ | y |
|-----|-----------------------------------|-----|
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1. Consider the linear equation $x - \frac{3}{2}y = -2$.
 - a. Will you choose to fix values for x or y ? Explain.
 - b. Are there specific numbers that would make your computational work easier? Explain.
 - c. Find five solutions to the linear equation $x - \frac{3}{2}y = -2$, and plot the solutions as points on a coordinate plane.

| x | Linear equation: $x - \frac{3}{2}y = -2$ | y |
|-----|---|-----|
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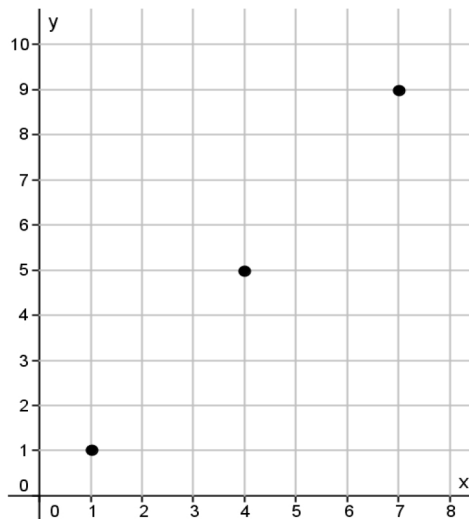
2. Find five solutions for the linear equation $\frac{1}{3}x + y = 12$, and plot the solutions as points on a coordinate plane.
3. Find five solutions for the linear equation $-x + \frac{3}{4}y = -6$, and plot the solutions as points on a coordinate plane.
4. Find five solutions for the linear equation $2x + y = 5$, and plot the solutions as points on a coordinate plane.
5. Find five solutions for the linear equation $3x - 5y = 15$, and plot the solutions as points on a coordinate plane.

1. Is the point $(1, 3)$ a solution to the linear equation $5x - 9y = 32$? Explain.

No, $(1, 3)$ is not a solution to $5x - 9y = 32$ because $5(1) - 9(3) = 5 - 27 = -22$, and $-22 \neq 32$.

2. Find three solutions for the linear equation $4x - 3y = 1$, and plot the solutions as points on a coordinate plane.

| x | Linear equation: $4x - 3y = 1$ | y |
|-----|--|-----|
| 1 | $4(1) - 3y = 1$ $4 - 3y = 1$ $-3y = -3$ $y = 1$ | 1 |
| 4 | $4x - 3(5) = 1$ $4x - 15 = 1$ $4x = 16$ $x = 4$ | 5 |
| 7 | $4(7) - 3y = 1$ $28 - 3y = 1$ $-3y = -27$ $y = 9$ | 9 |



Students practice finding and graphing solutions for linear equations that are in standard form.

1. Consider the linear equation $x - \frac{3}{2}y = -2$.

- a. Will you choose to fix values for x or y ? Explain.

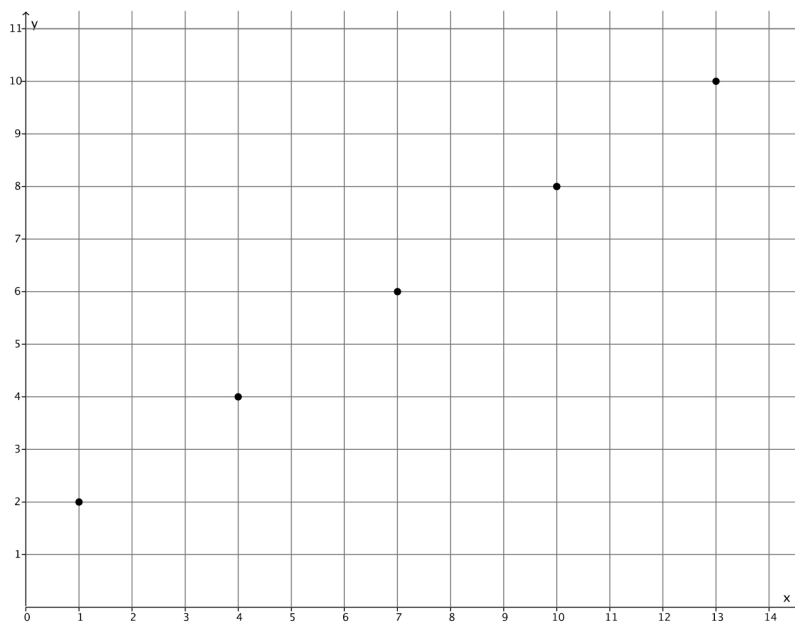
If I fix values for y , it will make the computations easier. Solving for x can be done in one step.

- b. Are there specific numbers that would make your computational work easier? Explain.

Values for y that are multiples of 2 will make the computations easier. When I multiply $\frac{3}{2}$ by a multiple of 2, I will get a whole number.

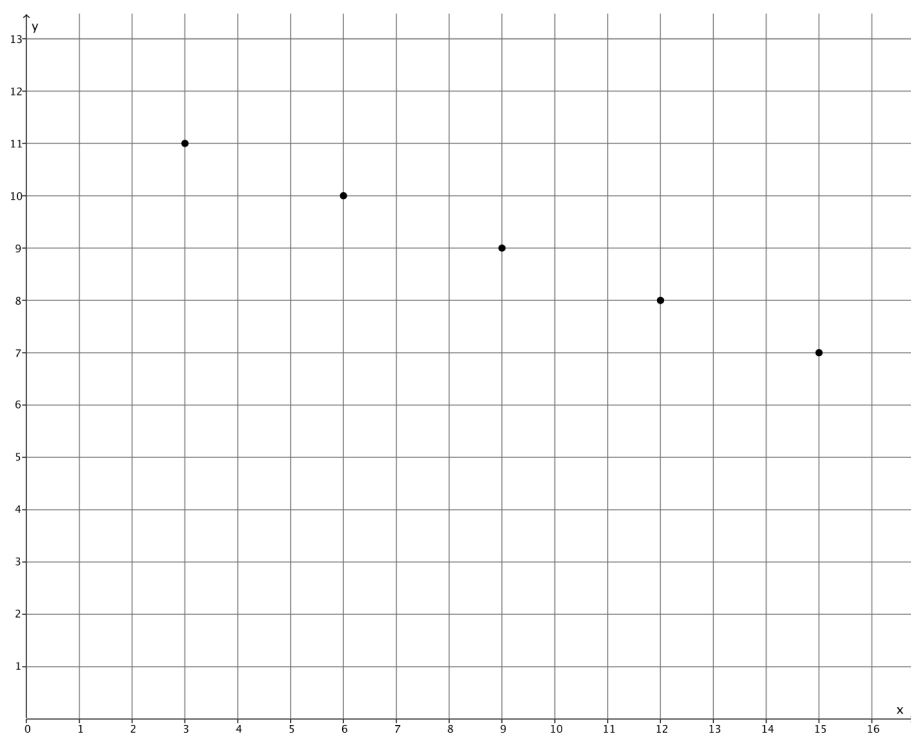
- c. Find five solutions to the linear equation $x - \frac{3}{2}y = -2$, and plot the solutions as points on a coordinate plane.

| x | Linear equation: $x - \frac{3}{2}y = -2$ | y |
|-----|---|-----|
| 1 | $x - \frac{3}{2}(2) = -2$ $x - 3 = -2$ $x - 3 + 3 = -2 + 3$ $x = 1$ | 2 |
| 4 | $x - \frac{3}{2}(4) = -2$ $x - 6 = -2$ $x - 6 + 6 = -2 + 6$ $x = 4$ | 4 |
| 7 | $x - \frac{3}{2}(6) = -2$ $x - 9 = -2$ $x - 9 + 9 = -2 + 9$ $x = 7$ | 6 |
| 10 | $x - \frac{3}{2}(8) = -2$ $x - 12 = -2$ $x - 12 + 12 = -2 + 12$ $x = 10$ | 8 |
| 13 | $x - \frac{3}{2}(10) = -2$ $x - 15 = -2$ $x - 15 + 15 = -2 + 15$ $x = 13$ | 10 |



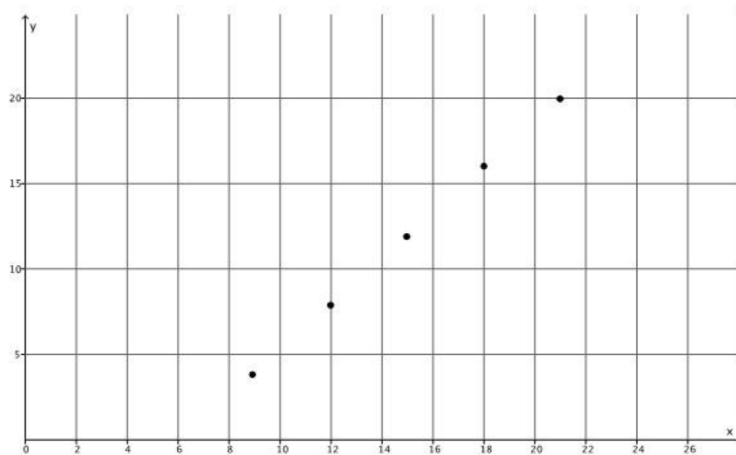
2. Find five solutions for the linear equation $\frac{1}{3}x + y = 12$, and plot the solutions as points on a coordinate plane.

| x | Linear equation: $\frac{1}{3}x + y = 12$ | y |
|-----|---|-----|
| 3 | $\frac{1}{3}(3) + y = 12$ $1 + y = 12$ $y = 11$ | 11 |
| 6 | $\frac{1}{3}(6) + y = 12$ $2 + y = 12$ $y = 10$ | 10 |
| 9 | $\frac{1}{3}(9) + y = 12$ $3 + y = 12$ $y = 9$ | 9 |
| 12 | $\frac{1}{3}(12) + y = 12$ $4 + y = 12$ $y = 8$ | 8 |
| 15 | $\frac{1}{3}(15) + y = 12$ $5 + y = 12$ $y = 7$ | 7 |



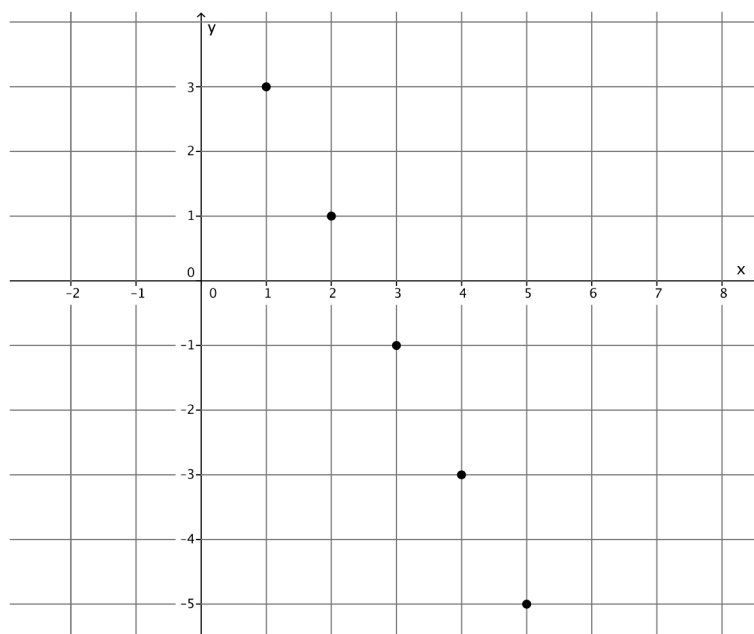
3. Find five solutions for the linear equation $-x + \frac{3}{4}y = -6$, and plot the solutions as points on a coordinate plane.

| x | Linear equation: $-x + \frac{3}{4}y = -6$ | y |
|-----|--|-----|
| 9 | $-x + \frac{3}{4}(4) = -6$ $-x + 3 = -6$ $-x + x + 3 = -6 + x$ $3 = -6 + x$ $3 + 6 = -6 + 6 + x$ $9 = x$ | 4 |
| 12 | $-x + \frac{3}{4}(8) = -6$ $-x + 6 = -6$ $-x + x + 6 = -6 + x$ $6 = -6 + x$ $6 + 6 = -6 + 6 + x$ $12 = x$ | 8 |
| 15 | $-x + \frac{3}{4}(12) = -6$ $-x + 9 = -6$ $-x + x + 9 = -6 + x$ $9 = -6 + x$ $9 + 6 = -6 + 6 + x$ $15 = x$ | 12 |
| 18 | $-x + \frac{3}{4}(16) = -6$ $-x + 12 = -6$ $-x + x + 12 = -6 + x$ $12 = -6 + x$ $12 + 6 = -6 + 6 + x$ $18 = x$ | 16 |
| 21 | $-x + \frac{3}{4}(20) = -6$ $-x + 15 = -6$ $-x + x + 15 = -6 + x$ $15 = -6 + x$ $15 + 6 = -6 + 6 + x$ $21 = x$ | 20 |



4. Find five solutions for the linear equation $2x + y = 5$, and plot the solutions as points on a coordinate plane.

| x | Linear equation: $2x + y = 5$ | y |
|-----|--|-----|
| 1 | $2(1) + y = 5$ $2 + y = 5$ $y = 3$ | 3 |
| 2 | $2(2) + y = 5$ $4 + y = 5$ $y = 1$ | 1 |
| 3 | $2(3) + y = 5$ $6 + y = 5$ $y = -1$ | -1 |
| 4 | $2(4) + y = 5$ $8 + y = 5$ $y = -3$ | -3 |
| 5 | $2(5) + y = 5$ $10 + y = 5$ $y = -5$ | -5 |



5. Find five solutions for the linear equation $3x - 5y = 15$, and plot the solutions as points on a coordinate plane.

| x | Linear equation: $3x - 5y = 15$ | y |
|----------------|--|-----|
| $\frac{20}{3}$ | $3x - 5(1) = 15$ $3x - 5 = 15$ $3x - 5 + 5 = 15 + 5$ $3x = 20$ $\frac{3}{3}x = \frac{20}{3}$ $x = \frac{20}{3}$ | 1 |
| $\frac{25}{3}$ | $3x - 5(2) = 15$ $3x - 10 = 15$ $3x - 10 + 10 = 15 + 10$ $3x = 25$ $\frac{3}{3}x = \frac{25}{3}$ $x = \frac{25}{3}$ | 2 |
| 10 | $3x - 5(3) = 15$ $3x - 15 = 15$ $3x - 15 + 15 = 15 + 15$ $3x = 30$ $x = 10$ | 3 |
| $\frac{35}{3}$ | $3x - 5(4) = 15$ $3x - 20 = 15$ $3x - 20 + 20 = 15 + 20$ $3x = 35$ $\frac{3}{3}x = \frac{35}{3}$ $x = \frac{35}{3}$ | 4 |
| $\frac{40}{3}$ | $3x - 5(5) = 15$ $3x - 25 = 15$ $3x - 25 + 25 = 15 + 25$ $3x = 40$ $\frac{3}{3}x = \frac{40}{3}$ $x = \frac{40}{3}$ | 5 |

