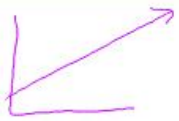

$y = kx + 2$

Lesson 12: Linear Equations in Two Variables

Classwork

Opening Exercise

Emily tells you that she scored 32 points in a basketball game with only two- and three-point baskets (no free throws). How many of each type of basket did she score? Use the table below to organize your work.

Number of Two-Pointers	Number of Three-Pointers
16	0
13	2
10	4
7	6
4	8
1	10

Let x be the number of two-pointers and y be the number of three-pointers that Emily scored. Write an equation to represent the situation.

$2x + 3y = 32$

Linear equation (in standard form)

$ax + by = c$

– a, b, c are numbers

$y + 1 = 3$
$-1 \quad -1$
$y = 2$

Exploratory Challenge/Exercises

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

x	**Linear equation:** $x + y = 3$	y
0	$(0) + y = 3$	3
1	$(1) + y = 3$	2
2	$(2) + y = 3$	1
3	$(3) + y = 3$	0
4	$(4) + y = 3$	-1

2. Find five solutions for the linear equation $2x - y = 10$, and plot the solutions as points on a coordinate plane.

x	**Linear equation:** $2x - y = 10$	y

3. Find five solutions for the linear equation $x + 5y = 21$, and plot the solutions as points on a coordinate plane.

x	**Linear equation:** $x + 5y = 21$	y
21	$x + 5(0) = 21$ $x + 0 = 21$	0
16	$x + 5(1) = 21$ $x + 5 = 21$ $x = 16$	1
11		2
		3
		4

4. Consider the linear equation $\frac{2}{5}x + y = 11$.

   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.