G5-M6-Lesson 7

1. Complete the chart. Then, plot the points on the coordinate plane.

x	y	(x,y)
3	$1\frac{1}{2}$	$\left(3, 1\frac{1}{2}\right)$
$1\frac{1}{2}$	0	$\left(1\frac{1}{2}, 0\right)$
2	$\frac{1}{2}$	$\left(2, \frac{1}{2}\right)$
$4\frac{1}{2}$	3	$\left(4\frac{1}{2}, 3\right)$

a. Use a straightedge to draw a line connecting these points.

b. Write a rule showing the relationship between the x-coordinates and y-coordinates of points on this line.

Each x-coordinate is $1\frac{1}{2}$ more than its corresponding y-coordinate.

> I could have also said that the y-coordinates are $1\frac{1}{2}$ less than the corresponding x-coordinates.
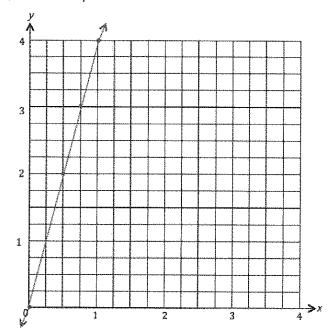
c. Name the coordinates of two other points that are also on this line.

$\left(2\frac{1}{2}, 1\right)$ *and* $\left(5, 3\frac{1}{2}\right)$

> As long as the x-coordinate is $1\frac{1}{2}$ more than the y-coordinate, the point will fall on this line.

Lesson 7:   Plot points, use them to draw lines in the plane, and describe patterns within the coordinate pairs.

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2. Complete the chart. Then, plot the points on the coordinate plane.

x	y	(x,y)
$\frac{3}{4}$	3	$\left(\frac{3}{4}, 3\right)$
1	4	$(1,4)$
$\frac{1}{2}$	2	$\left(\frac{1}{2}, 2\right)$
0	0	$(0,0)$

a. Use a straightedge to draw a line connecting these points.

b. Write a rule showing the relationship between the x-coordinates and y-coordinates for points on the line.

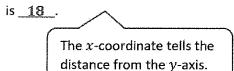*Each y-coordinate is four times as much as its corresponding x-coordinate.*

c. Name two other points that are also on this line.

$(2, 8)$ and $\left(\frac{5}{8}, 2\frac{1}{2}\right)$

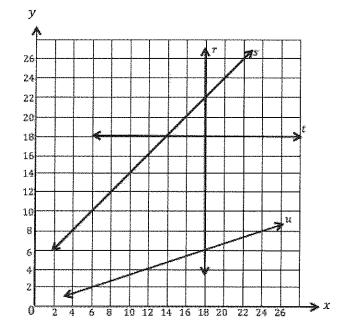> This rule is also correct: Each x-coordinate is 1 fourth as much as its corresponding y-coordinate.

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3. Use the coordinate plane to answer the following questions.

a. For any point on line r, the x-coordinate is __18__.

> The x-coordinate tells the distance from the y-axis.

b. Give the coordinates for 3 points that are on line s.

$(4, 8)$ $(10, 14)$ $(20, 24)$

c. Write a rule that describes the relationship between the x-coordinates and y-coordinates on line s.

Each y-coordinate is 4 more than its corresponding x-coordinate.

> I could also say, "Each x-coordinate is 4 less than the y-coordinate."

d. Give the coordinates for 3 points that are on line u.

$(6, 2)$ $(12, 4)$ $(24, 8)$

e. Write a rule that describes the relationship between the x-coordinates and y-coordinates on line u.

Each x-coordinate is 3 times as much as the y-coordinate.

> I could also say, "Each y-coordinate is $\frac{1}{3}$ the value of the x-coordinate."

f. Each of these points lies on at least 1 of the lines shown in the plane above. Identify a line that contains the following points.

$(18, 16.3)$ __r__ $(9.5, 13.5)$ __s__ $\left(16, 5\frac{1}{3}\right)$ __u__ $(22.3, 18)$ __t__

> All of the points on line r have an x-coordinate of 18.

> All of the points on line t have a y-coordinate of 18.

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