G5-M6-Lesson 10

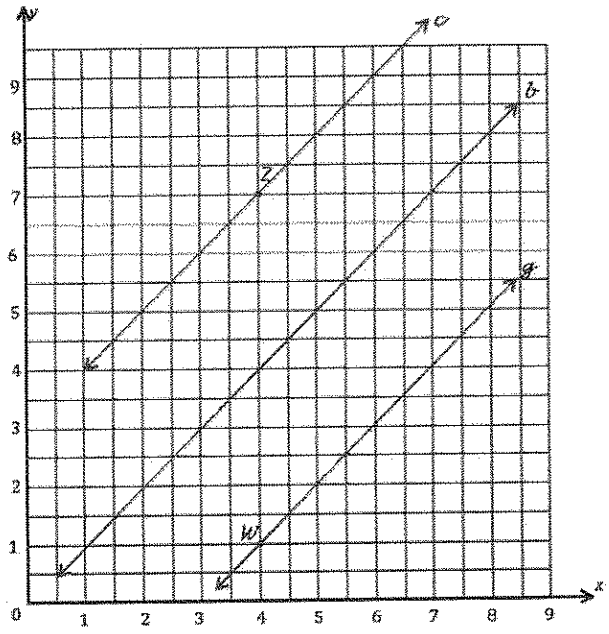
1. Use the coordinate plane to complete the following tasks.

   a. The rule for line b is "x and y are equal." Construct line b.

   Some coordinate pairs that follow this rule are
   $(1, 1)$ $(3, 3)$ $(6.5, 6.5)$

   b. Construct a line, c, that is parallel to line b and contains point Z.

   Since line c needs to be parallel to line b, the rule for line c must be an addition or subtraction rule. The coordinate pair for Z is $(4, 7)$, so I can draw line c along other coordinate pairs that have a y-coordinate that is 3 *more* than the x-coordinate.



   c. Name 3 coordinate pairs on line c.

   $(2, 5)$ $(3, 6)$ $(6, 9)$

   d. Identify a rule to describe line c.

   Another way to describe this rule is: y is 3 more than x.

   x is 3 less than y.

   e. Construct a line, g, that is parallel to line b and contains point W.

   f. Name 3 points on line g.

   $(3.5, 0.5)$ $(6, 3)$ $(7, 4)$

   Again, since line g needs to be parallel to line b, the rule for line g must be an addition or subtraction rule. The coordinate pair for W is $(4, 1)$, so I can draw line g along other coordinate pairs that have a y-coordinate that is 3 *less* than the x-coordinate.

   g. Identify a rule to describe line g.

   x is 3 more than y.

h. Compare and contrast lines c and g in terms of their relationship to line b.

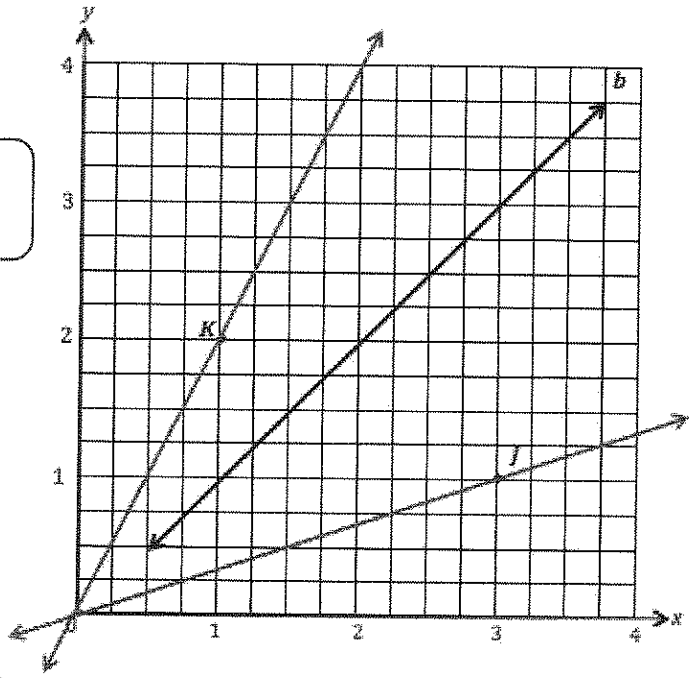
Lines c and g are both parallel to line b.
Line c is above line b because the points on line c have y-coordinates greater than the x-coordinates.
Line g is below line b because the points on line g have y-coordinates less than the x-coordinates.

2. Write a rule for a fourth line that would be parallel to those in Problem 1 and that would contain the point $(5, 6)$.

y is 1 more than x.

Because this line is parallel to the others, I know it has to be an addition rule. In the given coordinate pair, the y-coordinate is 1 more than the x-coordinate.

3. Use the coordinate plane below to complete the following tasks.



a. Line b represents the rule "x and y are equal."

I can also think of this as a multiplication rule. "x times 1 is equal to y."

b. Construct a line, j, that contains the origin and point J.

c. Name 3 points on line j.

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

d. Identify a rule to describe line j.

x is 3 times as much as y.

As I analyze the relationship between the x- and y-coordinates on line j, I can see that each y-coordinate is $\frac{1}{3}$ the value of its corresponding x-coordinate.

e. Construct a line, k, that contains the origin and point K.

f. Name 3 points on line k.

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

g. Identify a rule to describe line k.

x is half of y.

As I analyze the relationship between the x-coordinates and y-coordinates on line k, I can see that each y-coordinate is twice the value of its corresponding x-coordinate.