

KEY CONCEPT OVERVIEW

In Lessons 7 through 12, students continue to learn about the coordinate plane by investigating patterns.

You can expect to see homework that asks your child to do the following:

- Use given rules to generate coordinate pairs, plot points, and investigate relationships.
- Construct lines and analyze the relationships between them.
- Generate number patterns from given rules, plot the points, and analyze the relationships within the sequences of the **ordered pairs**.
- Create rules to generate number patterns and plot the points.

SAMPLE PROBLEM (From Lesson 9)

Complete the table for the given rule. Then, construct lines *a* and *b* on the coordinate plane.

- a. Construct each line on the coordinate plane.

Line *a*

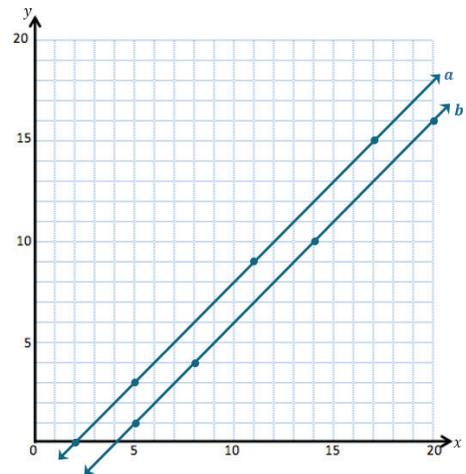
Rule: *y* is 2 less than *x*.

<i>x</i>	<i>y</i>	(<i>x</i> , <i>y</i>)
2	0	(2, 0)
5	3	(5, 3)
11	9	(11, 9)
17	15	(17, 15)

Line *b*

Rule: *y* is 4 less than *x*.

<i>x</i>	<i>y</i>	(<i>x</i> , <i>y</i>)
5	1	(5, 1)
8	4	(8, 4)
14	10	(14, 10)
20	16	(20, 16)



- b. Compare and contrast these lines.

The lines are parallel. Neither line passes through the origin. Line *b* has *y*-values 2 units less than in line *a*.

- c. Based on the patterns you see, predict what line *c*, whose rule is *y* is 6 less than *x*, would look like.

Since the rule for line *c* is also a subtraction rule, I think line *c* will also be parallel to lines *a* and *b*. Line *c* will have *y*-values 2 units less than in line *b* and 4 units less than in line *a*.

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Practice naming coordinate pairs with your child. Plot a set of points on the coordinate plane and have your child name the coordinate pair for each point. To make it more interesting and fun, try to plot a set of points so that when all points are connected they form either a shape or an animal. You may use the coordinate grid template from Lesson 8.
- Ask your child to explain how she determines where to plot an ordered pair on the coordinate plane. What does the first number in the ordered pair mean? What does the second number in the ordered pair mean? (Answers: The first number in the ordered pair is the x -coordinate. This number represents the distance from 0 on the x -axis. The second number in the ordered pair is the y -coordinate. This number represents the distance from 0 on the y -axis.)

TERMS

Ordered pair: Two quantities written in a given fixed order, usually written as (x, y) .

Origin: A fixed point from which coordinates are measured; the point at which the x -axis and y -axis intersect, labeled $(0, 0)$ on the coordinate plane.