Unit 4 – Lesson 21

Name: \_\_\_\_\_

Point Slope Form of Linear Equations

Date: \_\_\_\_\_\_ Period: \_\_\_\_\_\_

Focus Standards:	8.EE.B.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.
	8.EE.B.6	Use similar triangles to explain why the slope <i>m</i> is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation for a line through the origin and the equation for a line intercepting the vertical axis at .

#### **Student Outcomes**

- Students write the equation of a line given two points or the slope and a point on the line.
- Students know the traditional forms of the slope formula and slope-intercept equation.

#### Example 1



## Example 2



## Example 3



## Example 4



#### Exercises

1. Write the equation for the line l shown in the figure.



2. Write the equation for the line l shown in the figure.



3. Determine the equation of the line that goes through points (-4, 5) and (2, 3).

4. Write the equation for the line *l* shown in the figure.



5. A line goes through the point (8, 3) and has slope m = 4. Write the equation that represents the line.

### **Problem Set**

1. Write the equation for the line *l* shown in the figure.



2. Write the equation for the line l shown in the figure.





3. Write the equation for the line l shown in the figure.

4. Triangle *ABC* is made up of line segments formed from the intersection of lines  $L_{AB}$ ,  $L_{BC}$ , and  $L_{AC}$ . Write the equations that represent the lines that make up the triangle.



- 5. Write the equation for the line that goes through point (-10, 8) with slope m = 6.
- 6. Write the equation for the line that goes through point (12, 15) with slope m = -2.
- 7. Write the equation for the line that goes through point (1, 1) with slope m = -9.

8. Determine the equation of the line that goes through points (1, 1) and (3, 7).