

Introduction

In this activity, students will find the symbolic representation of verbal descriptions of mathematical rules defining the relationship between two variables.

Grades 6-8

NCTM Algebra Standards

- Represent and analyze mathematical situations and structures using algebraic symbols
- Develop an initial conceptual understanding of different uses of variables

Files/Materials Needed

Rule Points.act, Rule Equation.act, Whats My Rule.edc

1

- Launch TI-Navigator™ on the computer and start the session.
- Have each student log into NavNet on their calculator.

2

- Load the activity settings file *Rule Points.act*.
- Start the activity and select the **List-Graph** tab.
- Hide the screen (either by minimizing it or covering the projector lens), and instruct students to mark two points that meet the following verbal rule:
Make the y-coordinate 5 more than the x-coordinate.
Have the students make one of their x-coordinates positive and the other negative.
- When all students are finished, stop the activity and reveal the screen. Discuss any incorrect points and revise as necessary.

3

- Load the activity settings file *Rule Equation.act*.
- Start the activity and instruct students to study both the plot and the list under the **List-Graph** tab and then enter an equation into Y1 that defines the relationship between the coordinates. They may select **PLOT** to see whether their equation matches the points. If not, they may select **EQN** to try again.
- When the students find the correct equation, have them press **SEND** to send the equation to Activity Center.

- Stop the activity to discuss class results. All the equations should lie on top of each other and line up with the points. Analyze any incorrect equations and revise as necessary.

4

Use **Quick Poll** (with *Open Response*) to ask:

- *If we were to write the same rule in terms of x, what would x be equal to?*

Discuss results with your class to check for understanding. Explain that both forms of the rule are equivalent. Isolating y is useful for using calculators and studying functions. Isolating x is useful for studying inverse functions.

5

- Select **Clear Activity Data** from the Edit menu.
- Repeat steps 2 and 3 using other verbal rules (see tip below). For example, try:
 - *Make the y-coordinate 5 less than the x-coordinate*
 - *Make the y-coordinate one-third the x-coordinate*
 - *Make the y-coordinate 3 times the x-coordinate*
 - *Make the y-coordinate one more than twice the x-coordinate*
 - *Make the y-coordinate the same "value" as the x-coordinate, but always positive*
 - *Make the y-coordinate the square of the x-coordinate*

[Tip: Previous activity settings are preserved, so you do not have to reload. Simply switch back and forth between contributing points and equations.]

What's My Rule?

6

- a. Force send the LearningCheck™ file **Whats My Rule.edc**.
- b. Have students complete the assignment. Analyze the results with Class Analysis and discuss the results.