What's My Line?

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Introduction

In this activity, students will explore the meaning of slope and the slope-intercept form of a line.

Grades 6-8

NCTM Algebra Standards

- Represent and analyze mathematical situations and structures using algebraic symbols
- Explore relationships between symbolic expressions and graphs of lines, paying particular attention to the meaning of intercept and slope

Files/Materials Needed

Line Cursor.act, Line Equations.act, Whats My Line.edc

1

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

- *What do we call the rate at which a line increases or decreases for every 1 unit of increase in x?*
- *What do we call the y-value of the point where a graph crosses the y-axis?*

Discuss results with your class to check for understanding.

2

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

3

a. Load the activity settings file *Line Cursor.act*.
b. Select the **Graph-Equation** tab, and add the equation $y = 2x – 3$ to Activity Center.
c. Start the activity and select **Individualize Student Cursors** from the View menu.
d. Instruct the students to move their cursors to any point on the line. Their coordinates will be displayed on their calculator screen, so they can confirm whether or not they are on the line.
e. Hide the screen by either minimizing it or by covering the projector lens. Instruct the students to use the right and up arrows to move their cursors two clicks up and one click to the right.

f. Pause the activity and reveal the screen. Each student should still be on the line, but in a different location.
g. Repeat steps e and f. Stop the activity and summarize. A slope of 2 means that for each increase of 2 units in *y,* there is an increase of 1 unit in *x* (i.e. every time you go up 2 units you must you must go to the right one unit).
h. Repeat the activity with other equations.

4

a. Clear the activity data and load the activity settings file *Line Equations.act*.
b. Select the **Graph-Equation** tab, and add the equation $y = –0.75x + 3$.
c. Start the activity. Students will receive the previous equation as Y1 and a blank for Y2. Instruct them to identify the slope and *y*-intercept of this equation. Instruct the students to enter an equation in Y2 that has the same slope as the given equation, but a different *y*-intercept. Students can select **PLOT** to check and **EQN** to try again.
d. When the students are ready, have them press **SEND**.
e. Stop the activity and discuss the resulting graphs. How are they similar? How are they different? When discussing, it may help to click on the Equation heading and use the down arrow on the keyboard to move through the list of equations.

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5

Clear the activity data and repeat step 4; this time using the same *y*-intercept and a different slope.

6

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