Linear Changes
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Grade Level: 8-10

Time Required: 50 minutes

Activity Overview:

There are 3 problems in this activity, each requiring student interaction with the TI-*n*spire handheld, each producing immediate on-screen dynamic results. The students will be editing linear functions and observing the changes in the graphs, first changing slopes and then changing the y-intercept. Students will also grab & move the graphed line and observe the changes of the on-screen equation. Each page of the activity will require student input, which will require students to save their work with a unique file name in a designated folder. All work can be completed on the handheld unit or you can require students to complete the student worksheet.

Concepts:

In this activity, you will explore:

- Linear functions in slope/intercept form
- Linear functions as they relate to f(x)=x
- Function shifts
- Comparing slopes

Teacher Preparation:

Teacher will need to download the file into each students TI-*n*spire handheld unit.
Print-out and make copies of the student worksheet/directions.
Before starting the lesson the teacher should have reviewed function notation and the slope/intercept form of linear equations.

Classroom Management:

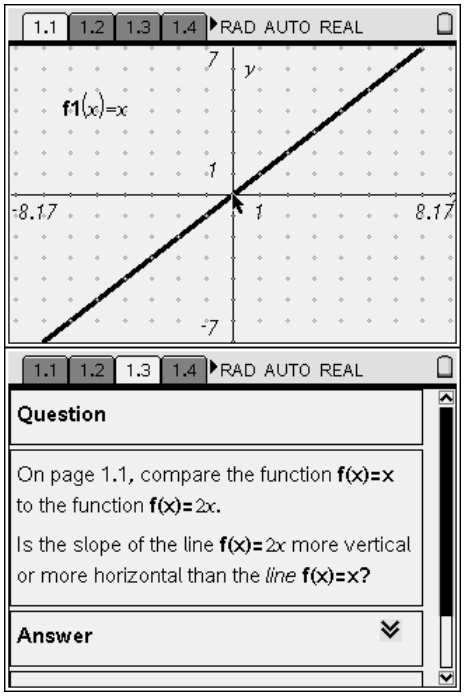
The worksheet given to students has detailed directions for this lesson. It is the teacher's choice whether the students are to enter their answers on the handheld, to be saved, or have the students write their answers on the worksheet, to be turned in. Each student should produce independent work, but allowing students to work within a group setting can assist students in a deeper understanding of the concepts.

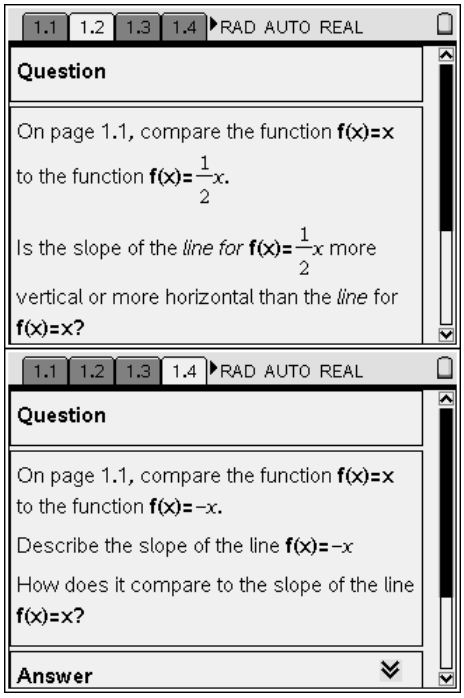
TI-*n*spire Applications:

Linear Changes.tns

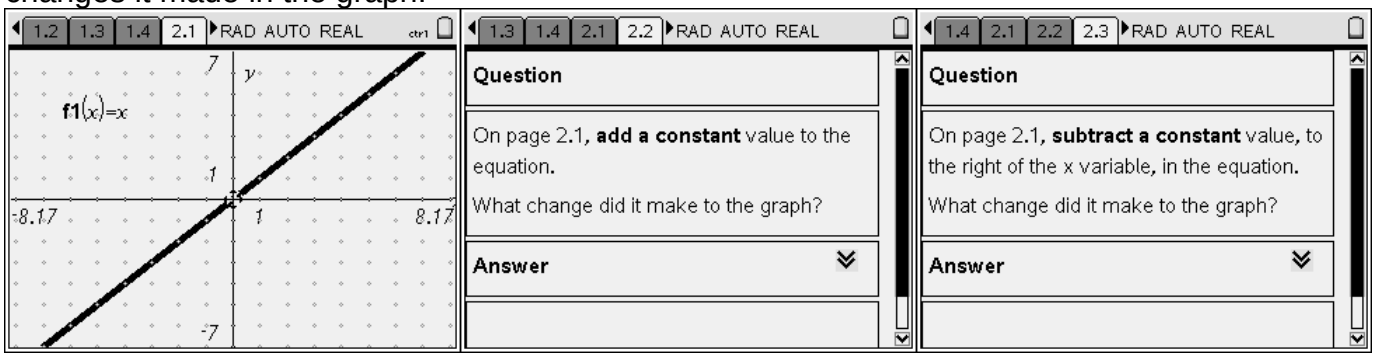
Directions:

Problem 1 has students changing the slope of f(x) = x, to include positive and negative integers and fractions, and asks them to observe the change in the graph. They will be asked about slopes that are more vertical vs. more horizontal.

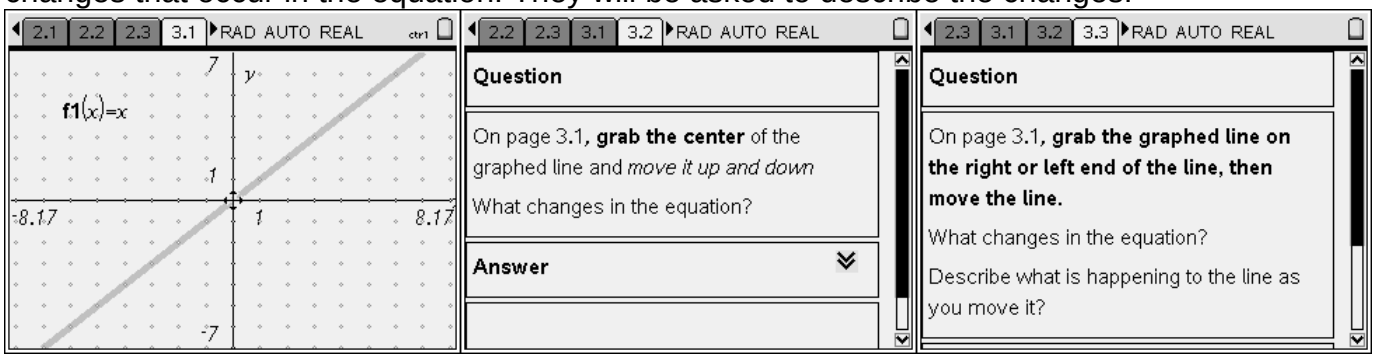




Problem 2 has students changing the y-intercept of f(x) = x, to include addition and subtraction of constant values, and asks them to observe the change in the graph. They will be asked about the changes it made in the graph.



Problem 3 has students moving the graphed line, both vertically and rotationally, while observing the changes that occur in the equation. They will be asked to describe the changes.



Problem 4 – Assessment:

Students need to fill in the blanks, of the questions, using the facts they gathered during the activity. They will end the assignment by changing a graphed line to match the given equation.