Activity Overview

In this activity, students will examine a set of ordered pairs that vary inversely. They will plot the ordered pairs and explore the graph and table for relationships. Students will also graph the inverse variation and determine whether it is a function.

Topic: Sampling

- Given the values of two variables that vary inversely, determine the rational function that relates them

Teacher Preparation and Notes

- This activity is appropriate for an Algebra 1 classroom or review for an Algebra 2 class.

- **To download the student worksheet, go to education.ti.com/exchange and enter "8203" in the keyword search box.**

Suggested Related Activities

To download any activity listed, go to education.ti.com/exchange and enter the number in the keyword search box.

- Constant of Variation (TI-84 Plus family) — 11196

- An Introduction to Inverse Variation (TI-84 Plus family with TI-Navigator) — 8046
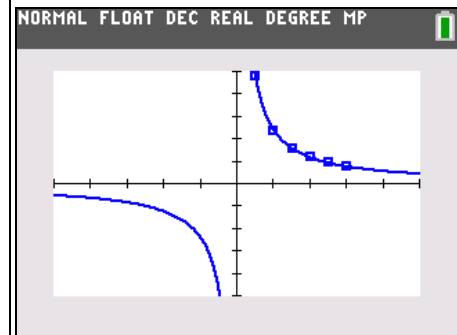
This activity utilizes MathPrint™ functionality and includes screen captures taken from the TI-84 Plus C Silver Edition. It is also appropriate for use with the TI-83 Plus, TI-84 Plus, and TI-84 Plus Silver Edition but slight variances may be found within the directions.

Compatible Devices:
- TI-84 Plus Family
- TI-84 Plus C Silver Edition

Associated Materials:
- InverseVariation _Student.pdf
- InverseVariation _Student.doc

Click HERE for Graphing Calculator Tutorials.

Students are to enter the data from the table on the worksheet into lists **L1** and **L2**.

Be sure that students have cleared all lists before beginning. To do this, press $\boxed{\text{2nd}}$ $\boxed{\text{MEM}}$, then select **ClrAllLists**.

Students will then create a scatter plot of the data using **Plot1**.

They are to describe the relationship of *x* and *y*. As the *x*-values increase, the *y*-values decrease. The rate is not constant; the amount of change in *y* decreases as *x* increases.

For list **L3**, students will enter the formula **L1✳L2**, multiplying the *x*-values by the *y*-values.

The formula $x \cdot y = 24$ might be used for the area of 24 units, where *x* is the length and *y* is the width.
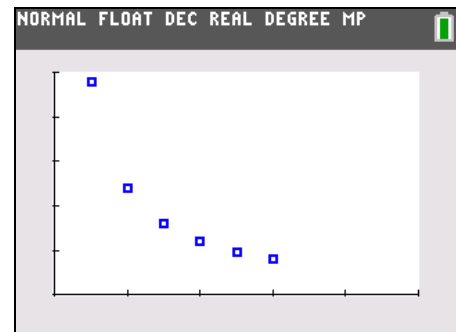
When students solve the equation $x \cdot y = 24$ for *y*, they should get $y = \dfrac{24}{x}$ and enter this in **Y1**.

As students view the function table, they should see that the function is undefined at *x* = 0.

They should also see that the negative *x*-values have the exact opposite *y*-values as the positive *x*-values.

When students view the entire graph, they should confirm that *x* is undefined at zero (vertical and horizontal asymptotes at zero).

The graph does not appear in Quadrants II or IV because the *x*- and *y*-values have the same sign.

An inverse variation could be in Quadrants II or IV, if the coefficient is negative.