

Order Pears

ID: 11639

Time Required

15 minutes

Activity Overview

In this activity, students will graphically explore the coordinates of a point on a Cartesian plane, identifying characteristics of a point corresponding to the coordinate. Students will plot ordered pairs of a function, list these in a table, and create a scatter plot. Students use self-check questions to check their understanding. Extension questions are also provided to apply what is learned.

Topic: Functions & Relations

- Cartesian coordinate system
- Characteristic of ordered pairs in a quadrant
- Graph ordered pairs on a scatter plot

Teacher Preparation and Notes

- *It would be beneficial for students to be familiar with navigating between pages ($\text{ctrl} + \leftarrow$ or $\text{ctrl} + \rightarrow$), toggling ($\text{ctrl} + \text{tab}$) and using self-check questions. These questions can be checked by using $\text{ctrl} + \blacktriangle$ or **MENU > Check Answer**.*
- *This activity can serve as an introduction to ordered pairs, quadrants, graphing points and see the connection between a function and a graph.*
- *The student worksheet provides similar questions to those in the student TI-Nspire document (.tns file).*
- ***To download the student and solution TI-Nspire documents (.tns files) and student worksheet, go to education.ti.com/exchange and enter "11639" in the quick search box.***

Associated Materials

- *OrderPears_Student.doc*
- *OrderPears.tns*
- *OrderPears_Soln.tns*

Suggested Related Activities

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

- *Where is the Point? (TI-Nspire technology) — 8247*
- *Points & Lines & Slopes Oh My! (TI-Nspire technology) — 8106*
- *Solutions (TI-84 Plus family with TI-Navigator) — 6037*
This Learning Check document can be converted into a TI-Nspire file using the TI-Nspire Teacher Edition software.

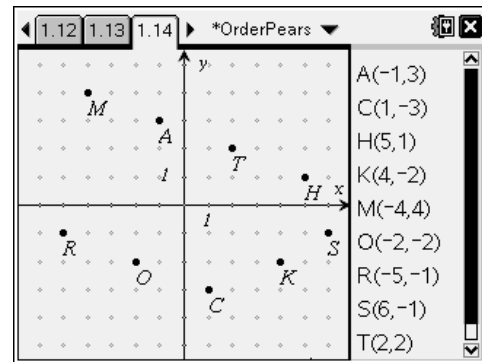
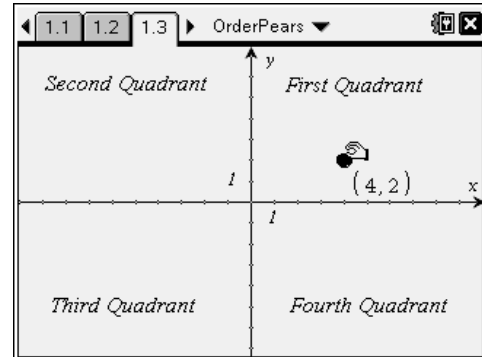
Problem 1 – Ordered Pair

On page 1.3, students explore the coordinates of a point in the various quadrants.

Teachers can point out the scale, the label of the x- and y-axis and ask students to describe the ordered pair when the point is closer to the x-axis than it is to the y-axis.

- What happens to the numbers when the point is moved horizontally to the left? *The first number in the ordered pair gets smaller.*
- What happens when the point is moved down? *The second number gets smaller.*

After students answer many multiple choice questions about what quadrant an ordered pair is in, they get to apply what they learned by plotting points to solve a puzzle. The solution of the puzzle is “MATH ROCKS.”

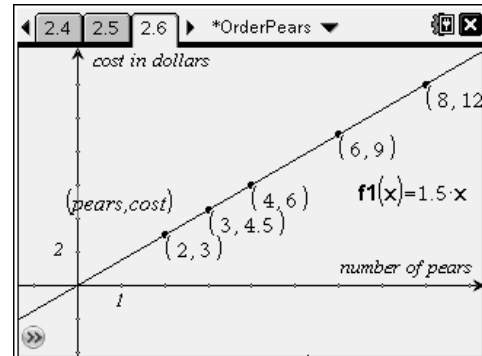
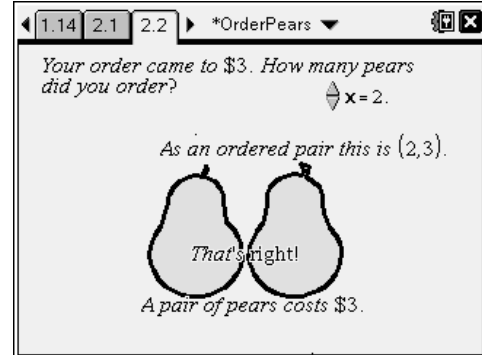


Problem 2 – Order Pears

Students are given a function for the cost of ordering pears. They answer a question that gives visual instant feedback for the correct answer. To answer the question, students need to click on the up arrow, which will change the value of x. When they select $x = 2$, the picture of the pears will appear.

Then, students are to enter 5 ordered pairs into the Lists & Spreadsheet application on page 2.4. The Data & Statistics scatter plot will update as they enter each ordered pair. This will also graph a scatter plot on page 1.6.

Lastly, students will graph the line $y = x$ and then rotate it so that it goes through the ordered pairs of the scatter plot. They should see that the slope of the line is the same as the coefficient of the function given for the cost of ordering pears.



Extension*Extension 1*

Students are to find some other real-life data and then represent it as a set of ordered pairs, table, and scatter plot.

Extension 2

Students are to come up with their own puzzle like the one on page 1.14, which spelled “math rocks.” They can share their puzzle with a friend or the class.

