



## Fathom Instructions

### Farm Value of Potatoes Exponential Activity

In this activity, you will retrieve data on the farm value of potatoes from 1950 to 2005 from E-STAT, Statistics Canada's large database for students and teachers. Farm value of potatoes refers to the dollar value of the potatoes that are sold by farmers within Canada and internationally. You will import the farm value of potatoes data into Fathom and use sliders to see if an exponential function model ( $y = ca^x$ ) is a good fit for the farm value of potatoes data.

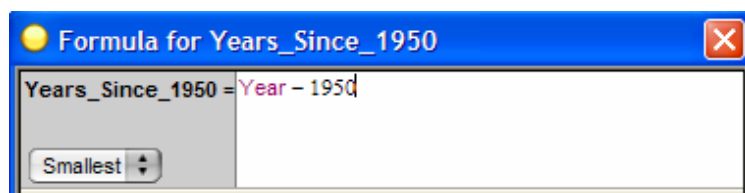
#### Fathom Analysis

**Note:** These instructions were written for Fathom 2. If you are using Fathom 1, some instructions may be slightly different.

#### *Retrieving, copying, and pasting the data*

- 1) On the **E-STAT Output specification** page, under **Screen output – table:**, select **Plain text: Table, time as rows**.
- 2) Click on the **Retrieve now** button.
- 3) Highlight only the data, but not the attribute names, legend at the top of the page, or the source line at the bottom of the page.
- 4) Right-click and select **Copy**.
- 5) Switch to **Fathom**. If Fathom isn't already running, you will need to launch it.
- 6) Create a new collection by dragging and dropping the **Collection** icon onto the workspace.
- 7) Double-click on the pre-assigned collection name to rename it **Farm Value of Potatoes**.
- 8) Right-click on the collection and select **Paste Cases**.
- 9) Double-click on the collection to inspect it.
- 10) Double-click on the pre-assigned attribute names to rename them **Year** and **Dollar\_Value\_Thousands**.
- 11) Click on the attribute labelled **<new>** and rename it **Years\_Since\_1950**.
- 12) Right-click on this attribute and select **Edit Formula**.
- 13) Click on the **+ sign** beside the word **Attributes** and double-click on **Year**. Then, click on the **- button (subtraction sign)**. Finally, type **1950** and click on the **OK button**.  
*This creates a new attribute that is the number of years since 1950 (the first year for which we retrieve data).*

**Your screen should look like this:**



- 14) Save your Fathom collection as **Farm Value of Potatoes**.

#### *Graphing and modelling the data*

- 1) Create a new graph by dragging and dropping the **Graph** icon onto the workspace.

- 2) Create a scatter plot of the farm value of potatoes per year by dragging and dropping the attribute **Years\_Since\_1950** on the **x-axis** and the attribute **Dollar\_Value\_Thousands** on the **y-axis**.

\*\*\*\*\* Go to your [worksheet](#) and answer questions #1 to 5. \*\*\*\*\*

- 3) Create two new sliders by dragging and dropping the **Slider** icon onto the workspace two times.
- 4) Rename **V1** as **c** and **V2** as **a** by double-clicking on the pre-assigned slider names.
- 5) Right-click on the graph and select **Plot Function**. A pop-up window 'Expression for function' will appear.
- 6) Enter the exponential equation as follows:
  - Type **c**
  - Click on the **X button (multiplication sign)**
  - Type **a**
  - Click on the **^ button**
  - Click on the **+ sign** beside the word **Attributes**
  - Double-click on **Years\_Since\_1950**
  - Click on the **OK button**

Your screen should look like this:



- 7) Using your knowledge of exponential equations and the meaning of the parameters **c** and **a**, change the sliders to values that best approximate the farm value of potatoes data.  
**Note:** You can change the upper and lower bounds of the slider by double-clicking on the value and then editing **Upper\_** and **Lower\_** in the pop-up table. You can also manually drag the values on the slider by placing your mouse over the values until a **sideways hand** appears. Drag this hand in order to alter the range of values.

\*\*\*\*\* Go to your [worksheet](#) and answer questions #6 to 11. In question #11, you will need to paste your graph. To do this, click on the graph, then go to the Edit menu, and select Copy as Picture. When you are in the worksheet document, right-click and paste your graph. \*\*\*\*\*