

Using Microsoft Excel To Write A Polynomial Model

MULTI-STEP PROBLEM The table shows the average U.S. movie ticket price (in dollars) for various years from 1983 to 2003.

| | | | | | | |
|---|------|------|------|------|------|------|
| Years since 1983, t | 0 | 4 | 8 | 12 | 16 | 20 |
| Movie ticket price, m | 3.15 | 3.91 | 4.21 | 4.35 | 5.08 | 6.03 |

- Use Microsoft Excel to find a polynomial model for the data.
- Using your polynomial model (equation), estimate the average movie ticket price in 2011.
- In which year was the average movie ticket price about \$4.50?

Steps for Part A

- Open Microsoft Excel
- In Column A, Row 1, type "Years since 1983". In Column B, Row 1, type "Movie Ticket Price".
- In Column A under "Years since 1983", type the values given in the table above. Do the same in Column B for the values of the movie ticket prices.
- Highlight all of your information from Column A, Row 1 to Column B, Row 7.
- Select the Insert tab and choose Scatter Plot. Select the scatter plot that plots only the points.
- Under Chart Tools, click on Trendline and select More Trendline Options.
- Select Polynomial and change the order to 3.
- At the bottom, check the boxes Display Equation On Chart and Display R-squared Value On Chart.
- Ask Mr. Christen to check it over before you print.

Do the work for Parts B and C on your print out.

Steps for Part B

- Subtract 2011 and 1983 to find the "Years since 1983".
- Substitute your answer from above into the equation from Part A.

Steps for Part C

- Use your chart to approximate the "Years since 1983" (your x-value) where your graph crosses \$4.50 (y-value).
- Add your x-value to 1983.