**Activity 1: Function Discovery**

(Estimated Time = 20 minutes)

1. Use your favorite browser to access:

<http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/trend801.pdf>

1. Go to page 5-4, Table 5.2, which contains data for years 1951 to 1999. Copy the data from the table into an Excel spreadsheet.
2. Create an XY Scatter plot appropriate for presentation.
3. Using Excel’s tools, determine the form of the equation for a best-fit line
4. Create a second plot that shows the data linearized.

**Activity 2: Function Discovery**

(Estimated Time = 20 minutes)

Johannes Kepler (1619, German mathematician) concluded from his observations that the planets orbit the Sun, in contrast to the widely-held belief that the Earth was the center of the universe. Kepler believed that there was a relationship between the distance from the Sun to a planet and that planet's time of orbit.

1. Create an XY Scatter plot appropriate for presentation.
2. Using Excel’s tools, determine the form of the equation for a best-fit line
3. Create a second plot that shows the data linearized.

Use the following data to find the relationship.

|  |  |  |
| --- | --- | --- |
| Planet | Period (Earth years) | Distance from Sun (Astronomical Units) |
| Mercury | 0.24 | 0.39 |
| Venus | 0.62 | 0.72 |
| Earth | 1 | 1 |
| Mars | 1.88 | 1.52 |
| Jupiter | 11.9 | 5.2 |
| Saturn | 29.5 | 9.54 |

An "astronomical unit" is a measure of distance equal to the mean distance between the Sun and the Earth.