

MODELING UTAH POPULATION DATA

Math 1010 Intermediate Algebra Group Project

According to data from the U.S. Census Bureau, Population Division, the population of Utah appears to have increased linearly over the years from 1980 to 2008. The following table shows the population in 100,000's living in Utah according to year. In this project, you will use the data in the table to find a linear function $f(x)$ that represents the data, reflecting the change in population in Utah.

Estimates of Utah Resident Population, in 100,000's

Year	1981	1989	1993	1999	2005	2008
x	1	9	13	19	25	28
Population, y	15.2	17.1	19	22	25	27.4

Source: U.S. Census Bureau, Population Division

- Using the graph paper on the last page, plot the data given in the table as ordered pairs. Label the x and y axes with words to indicate what the variables represent.
- Use a straight edge to draw on your graph what appears to be the line that "best fits" the data you plotted. You will only have one line drawn, rather than several pieces of lines
- Estimate the coordinates of two points that fall on your best-fitting line. Write these points below.

$$(15, 20), (21, 23)$$

Use the points that you wrote down to find a linear function $f(x)$ for the line. Show your work!

$$m = \frac{23 - 20}{21 - 15} = \frac{3}{6} = \frac{1}{2}$$

$$y - 20 = \frac{1}{2}(x - 15)$$

$$y - 20 = \frac{1}{2}x - 7.5$$

$$\begin{array}{r} +20 \qquad \qquad \qquad +20 \\ \hline \end{array}$$

$$y = \frac{1}{2}x + 12.5$$