**Life Expectancy at 65** Using data for selected years from 1950 and projected to 2050, the function

\[ y = 0.077x + 13.827 \]

gives the life expectancy at age 65, with \( y \) equal to the number of additional years of expected life at age 65 and \( x \) equal to the number of years after 1950.\(^1\)

It’s important to read this problem very carefully and notice when and how \( x \) and \( y \) are defined. Here’s how it goes: If your 65 birthday is \( x \) years after 1950, then you can expect to live \( y \) more years. But this only works for people who turn 65 between the years 1950 and 2050.

So \( x \) represents the number of years after 1950 that a person turns 65 and \( y \) represents the number of additional years that person is expected to live.

**a.** Graph the model on the viewing window \([0,110] \times [0,25]\)

**b.** What time period does the viewing window in part (a) represent?

Since \( x \) is the number of years after 1950 and \( 0 \leq x \leq 110 \), the time period is from 1950 through 2060.

**c.** Use the graphing utility to find what the model predicts the life expectancy to be in 2038, rounded to one decimal place.

The year 2038 is 88 years after 1950 and we can see that when \( x = 88 \), \( y = 20.603 \). This means that the additional life expectancy is predicted to be 20.6 years.

A person who turns 65 years old in the year 2038 can expect to live 20.6 more years... to the ripe old age of 85.6.

\(^1\)Harshbarger/Yocco, *College Algebra In Context*, 5e, p. 40, #44.