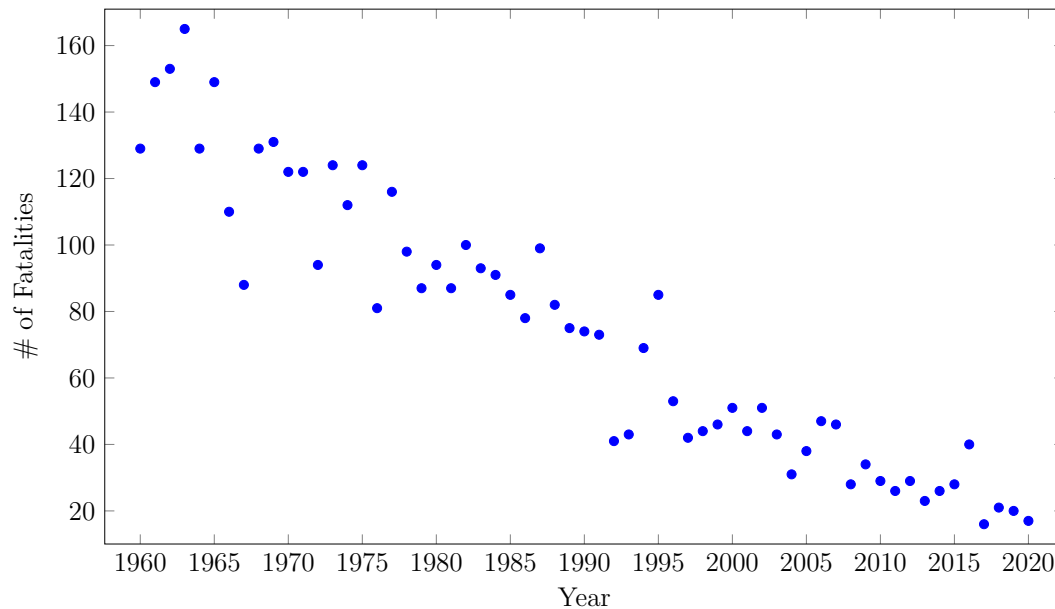


Linear Regression and Lightning Strikes

Math 121 - Workshop

Over the last 60 years there has been a dramatic decline in the number of fatalities (per year) due to lightning strikes in the United States. Here a graph of the data:



This data has $N = 61$, $\bar{x} = 1990$, $\bar{y} = 74.7$, $s_x = 17.8$, $s_y = 40.8$, and $r = -0.950$.

1. Find an equation for the least squares regression line.
2. What is the slope of the regression line (including units)? What does the slope tell us about lightning fatalities?

3. What percent of the variation in number of deaths is attributable to change in the year?
4. Using the regression line, what is the predicted number of fatalities for the year 2000?
5. If we follow the trendline into the future, in what year will the number of lightning fatalities be zero?
6. Do you believe that no one in the U.S. will be killed by lightning in that year? Why or why not?