

Linear Models: Population of Iceland

The population data for Iceland (in thousands of people) is from The World Bank.

Source: <https://data.worldbank.org/indicator/SP.POP.TOTL?end=2016&locations=IS&start=1970>

Year	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015
Population (in 1000s)	204.4	218	228.1	241.1	254.8	267.5	281.2	296.7	318	330.8

1. Calculate the difference in population between successive data points to make a case for why the population growth might be linear.
2. Estimate the average rate of change per year for Iceland's population based on the answer to the previous problem.
3. Let t be the number of years since 1970. Use linear regression to find a linear model for $P(t)$, the population of Iceland (in thousands).
4. Based on your regression model, estimate when the population of Iceland might be 400,000.
5. Estimate the population of Iceland in 2025.