## Linear Models

Real world trends tend to be complicated, but we often try to approximate them with straight line approximations. These linear models can help us better understand the trend, even if they aren't perfect.



1. In the year 1970 the *y*-value was approximately 0.3°C. In the year 2020, it was approximately 1.2°C. Find the formula for a line that passes through those two points. That is a rough linear model for global warming over the past 50 years.

2. What was the slope of the line? What are its units?

3. What does the slope mean in English? Write a sentence to explain.

4. If the warming trend continues at its current rate, how long until global average temperatures are  $2^{\circ}C$  higher than the 1850-1900 average?

5. What will the average y-value be in the year 2050?

6. What would the slope be if we expressed it in Fahrenheit instead of Celsius temperatures?

7. At the current rate, how long does it take for global temperatures to increase  $1^{\circ}$ F?