Graphing a linear graph

1. Create a table of y values and x values. Find the average point \((\bar{x}, \bar{y})\). We call it the "pivot".

2. Draw axes with proper scale and units. Plot points.

3. Using a transparent ruler, pivot about the average \(\bar{x}\) and draw two lines of maximum and minimum slope. Capture most of the points within the "cone of uncertainty". It's OK to leave out an outlier very close to the average.

4. Measure slope using rise/run, with units. Do this for both lines. Call the slopes \(S_{\text{max}}\) and \(S_{\text{min}}\).

5. Then the average slope is \(\bar{s} = \frac{S_{\text{max}} + S_{\text{min}}}{2}\) and the uncertainty in \(s\) is \(\sigma_s = \frac{|S_{\text{max}} - S_{\text{min}}|}{2}\).