Things You Should Know How to do:

- Standardize a variable: \( z = \frac{(x - \text{mean})}{\text{s.d.}} \)
- Un-standardize a variable: \( x = z \times \text{s.d.} + \text{mean} \)
- What does it mean to standardize your variables? The new mean=0 and the new standard deviation=1
- What is the meaning of \( r \) and \( r \)-squared
- Creating a FENCE based on IQR to test for outliers
- What is skewness? What is the effect of outliers on the mean? What about the median?
- How to read a column table (PG-13 / comedies, etc)
- How to understand conditional probabilities (e.g. the difference between "% of sunny days that were warm" and "% of warm days that were sunny")

Describing a distribution:

- Central Tendency: mean / median / mode
- Spread: standard deviation / min, max / IQR
- Shape: symmetric, skewed left/right, uniform/unimodal/bimodal/multimodal

In the calculator:

Enter a list of data and find: 1-Var Stats

- Mean
- Standard deviation (population s.d and sample s.d)
- Get 5-number summary (min, Q1, Median, Q3, max)
- Do you know how to make a box-plot in the calculator? What about a histogram?

Enter Two lists of data: LinReg(a+bx)

- Get \( r \) and \( r \)-squared
- Graph your line as \( Y_1 \)
- Make your scatter plot
- Plot your residuals (plot \( L_1 \) vs RESID)
- Zoom-9 (Stat Zoom)

Also: do you know how to make \( L_3 = \log(L_2) \) to see if \( L_1 \) vs \( \log(L_2) \) is a linear relationship? Move the cursor up to the heading of column \( L_3 \) and enter "\( \log(L_2) \)" and the calculator will do all of the calculations for you.

Working with Normal Distributions: normalcdf and invNorm

- Find the percentage above/below a z-score or between two z-scores
- Find the z-score that cuts off the lower/upper percentage
- Two ways to use normalcdf: \( \text{normalcdf}(z_1, z_2) \) for z-scores or \( \text{normalcdf}(x_1, x_2, \text{mean}, \text{standard deviation}) \) if you are using the units of the word problem