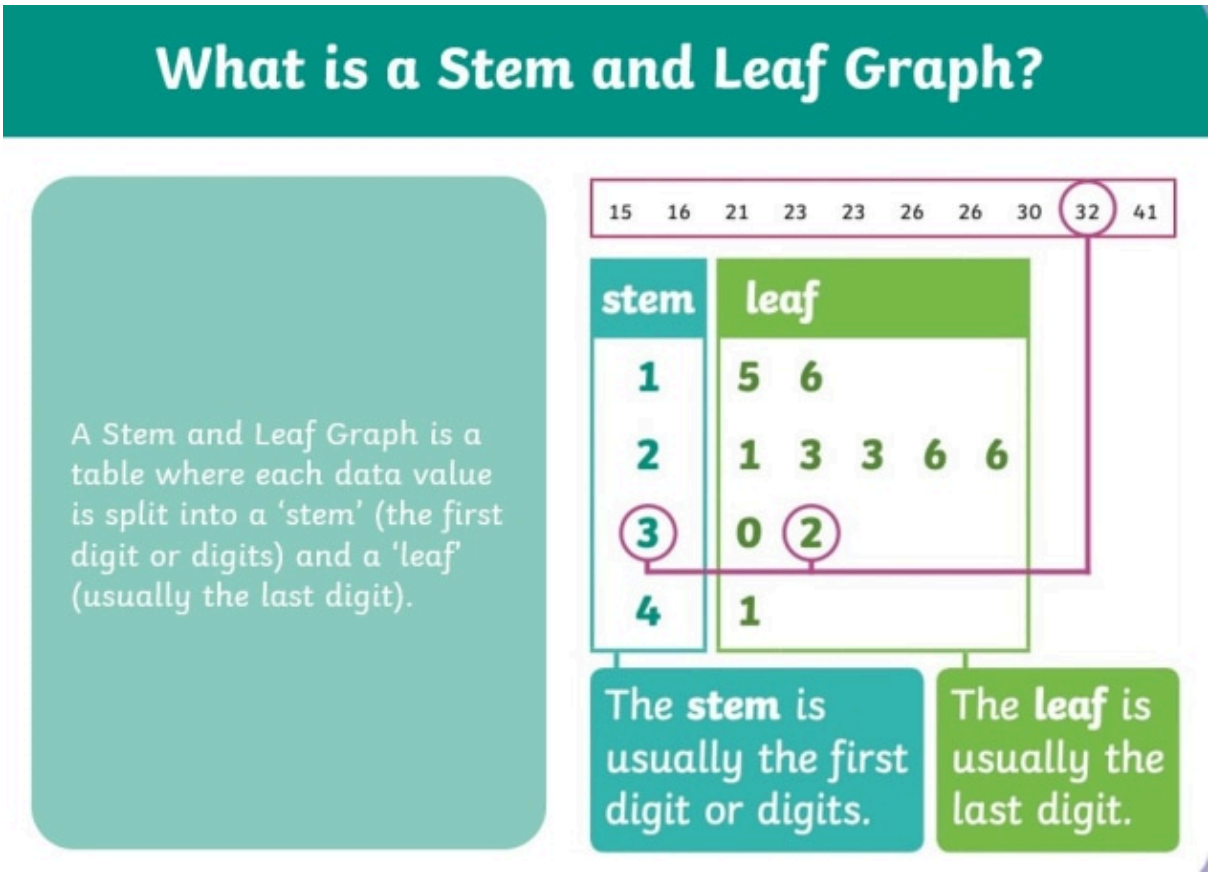
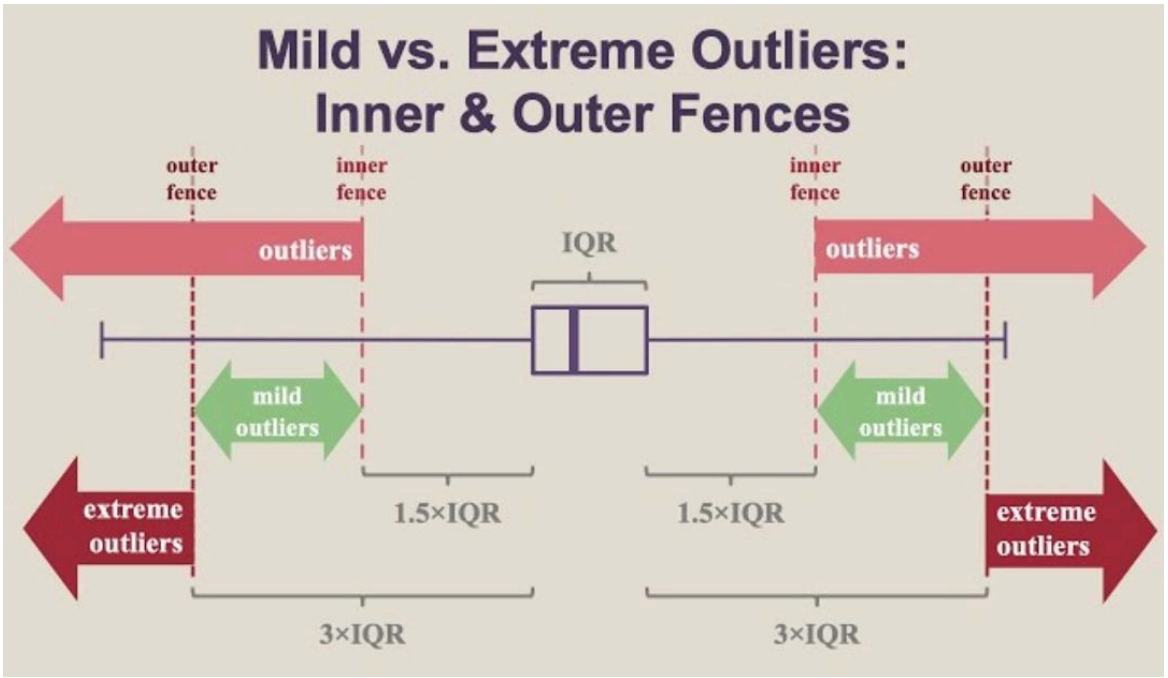
Stem and leaf



Box Plot

https://www.statskingdom.com/boxplot-maker.html



Trimean

Trimean = (Q1 + 2Q2 + Q3)/4

https://www.calculatorsoup.com/calculators/statistics/quartile-calculator.php

Geometric Mean/Percentage Returns

Formula for the Geometric Mean

$$\mu_{\text{geometric}} = [(1 + R_1)(1 + R_2) \dots (1 + R_n)]^{1/n} - 1$$

where:

- $R_1 \dots R_n$ are the returns of an asset (or other observations for averaging).

Calculating Geometric Mean

Imagine that your portfolio returned the following amounts each year for five years:

- Year one: 5%
- Year two: 3%
- Year three: 6%
- Year four: 2%
- Year five: 4%

You would use the formula with those values:

- $[(1 + .05)(1 + .03)(1 + .06)(1 + .02)(1 + .04)]^{1/5} - 1$
- $[1.05 \times 1.03 \times 1.06 \times 1.02 \times 1.04]^{1/5} - 1$
- $[1.2161]^{1/5} - 1$
- $[1.2161]^{.2} - 1 = .0399$

Multiply the result by 100%, and your portfolio returned a geometric mean of 3.99% over five years, slightly less than the arithmetic mean of (5+3+6+2+4) ÷ 5 = 4.

Geometric mean negative numbers

You can not calculate the geometric mean with negative numbers!
If you treat the list of numbers that contains negative numbers as a list of percentages, you may transform the list into a positive dataset of ratios. In this case, all the numbers will be positive, and it will be possible to calculate the geometric mean.
1. Transform each number list to proportion. F(x) = 1 + x/100. For example 5 is transformed to 1 + 5/100 = 1.05, and -3 is transformed to 1 - 3/100 = 0.97.
2. Calculate the geometric mean (GM) for the transformed list.
3. Convert the result back to percentages. GM' = 100(GM -1).

https://www.statskingdom.com/geometric-mean-calculator.html

Trimmed Mean

1. **Sort the dataset**: Arrange the data in ascending order to facilitate trimming.
2. **Determine the percentage of values to trim**: Choose the percentage of extreme values you want to exclude from each end of the dataset.
3. **Calculate the number of observations to trim**: Multiply the percentage by the total number of observations. Round the result to the nearest integer to determine how many observations you must discard from each end.
4. **Trim the dataset**: Remove the designated number of observations from both ends of the sorted dataset.
5. **Calculate the trimmed mean**: Add the values and divide by the number of remaining observations.

https://www.mathcelebrity.com/trimmedmean.php?num=65%2C70%2C72%2C75%2C80%2C85%2C90%2C92%2C95%2C100&tmpct=10&pl=Trimmed+Mean

Permutation and Combination

https://www.calculator.net/permutation-and-combination-calculator.html?cnv=8&crv=4&x=Calculate
order matters → permutation (Arranging 4 out of 8 people in a row for a photo: The order in which they are arranged matters (e.g., A, B, C, D is different from D, C, B, A). Use permutations.)
order doesn't matter → combination (Choosing 4 books out of 7 to take on a trip: The order in which the books are chosen doesn't matter (e.g., selecting A, B, C, D is the same as selecting D, C, B, A). Use combinations.)

Probability

binomial - https://stattrek.com/online-calculator/binomial
z score - https://www.calculator.net/z-score-calculator.html

Pearson Correlation

https://www.socscistatistics.com/pvalues/pearsondistribution.aspx

Standard Deviation

https://www.calculator.net/standard-deviation-calculator.html?numberinputs=70%2C85%2C78%2C90%2C88&ctype=p&x=Calculate

T-Test
https://www.omnicalculator.com/statistics/t-test

ANOVA
https://www.socscistatistics.com/tests/anova/default2.aspx
https://www.standarddeviationcalculator.io/anova-calculator
two-way ANOVA -
https://atozmath.com/CONM/Anova.aspx?q=anova2&q1=78%2382%2385%2c90%2388%2392%3b72%2375%2374%2c85%2380%2384%3b65%2368%2370%2c78%2375%2380%60%60&dp=4&do=1#PrevPart

Chi Square Test
https://www.socscistatistics.com/tests/chisquare2/default2.aspx
If the p-value is < 0.05, conclude that they are dependent (related). If p-value ≥ 0.05, conclude they are independent.