



Objectives

- Understand accepted graphing conventions (e.g., the three-quarters rule).
- Be able to construct different types of graphs and understand when each is most appropriate for the data given.
- Use common software applications to create graphs.



Basic Terms

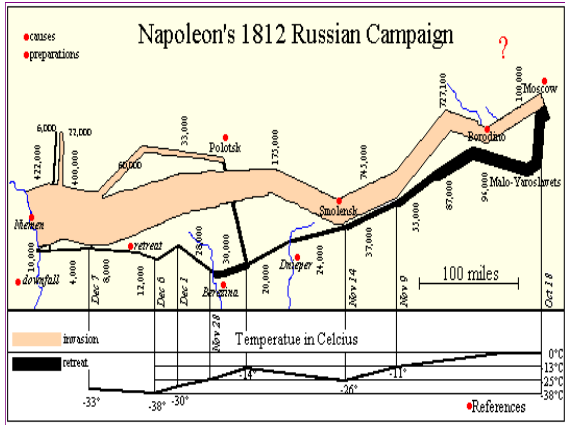
- **Graph:** A visual summarization/representation of numerical information
- **X axis – abscissa** (horizontal)
- **Y axis – ordinate** (vertical)
- **Skew**



What does Napoleon have to do with graphing?

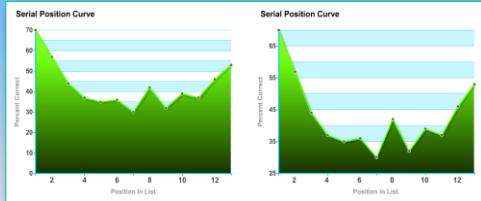
On the next slide, you will see a graph. Based on this image, can you piece together the fated story of Napoleon's 1812 campaign?





General Suggestions For Graphing

- Always begin y axis at 0





Line Graph

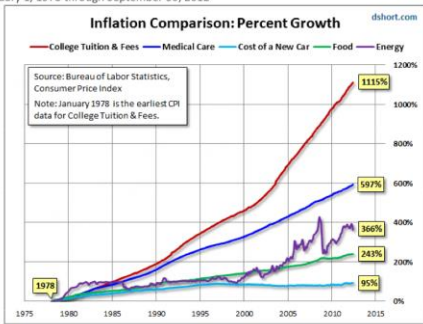
- Used to show change over time
 - DV on y-axis
 - Continuous or discrete numeric IV on x-axis

Graph on next slide



Inflation Comparison

January 1, 1978 through September 30, 2012



<http://doubleline.com/investments/blogpost.com/2012/08/08/inflation-comparison-and-growth-for-chess-why-qs.html>

ix

Frequency Polygon

- Depicts frequencies of discrete or continuous numeric data
- Single distribution
 - Frequency on y-axis
 - Scores on x-axis

Graph on next slide

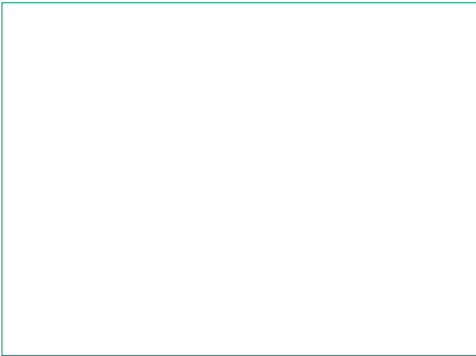




Relative Frequency

- **Compares two groups of different sizes based on percent frequency**
 - Based on % frequency column

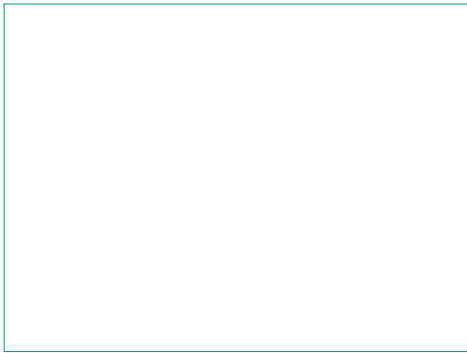
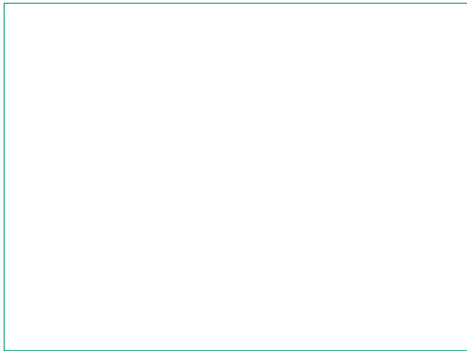
Graph on next slide



Skew (positive and negative)

- Freq on y-axis and scores on x axis
- Normal curve
 - Positive skew
 - Scores cluster to the left
 - Negative skew
 - Scores cluster to the right

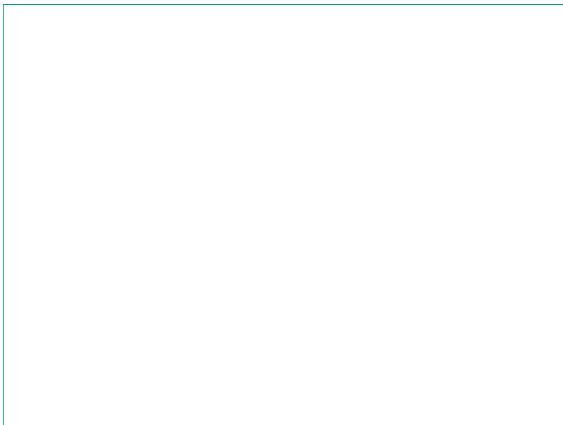
Graph on next slide



Bar Chart

- **Summarizes and compares measurements of multiple variables (usually different levels of the same IV)**
 - One axis represents categories
 - Other axis represents frequency or %
 - Usually IV on x and DV on y

Graph on next slide



Histogram

- **Used for discrete, numeric data**
 - Each bar = data point
 - Touching bars = sequential relationship
 - Why not continuous data? Many data points low frequency

Graph on next slide



How many bars are too many? How many colors?

Stem-and-Leaf Plot

- Summarizes numeric data
 - “Stems” aligned in first column
 - “Leaves” attached to second column, always 1’s place

Stem	Leaves
2	9
3	3 5 5 5 6
4	0 4 4 4 6 7
5	0 0 6 7 7 7 8
6	0 0 5 5 6 6 7
7	0 0 8 9