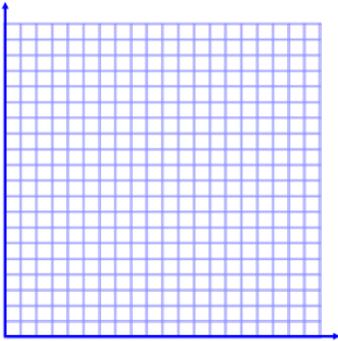


Section 2.1 Notes
Visualizing Distributions

There are 4 common shapes of distributions.

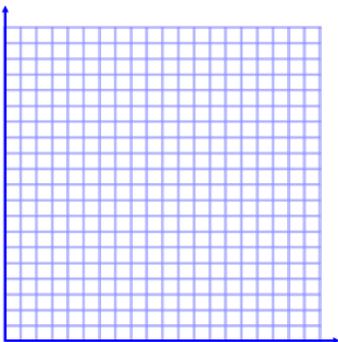
1. _____ Distribution: all values occur equally often.



Examples:

1. _____
2. _____
3. _____

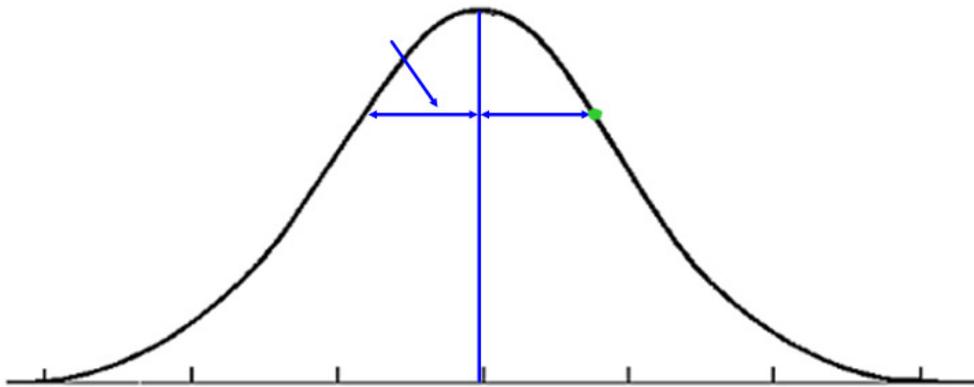
2. _____ Distribution: forms the shape of a symmetric bell and tails extend infinitely far in both directions.



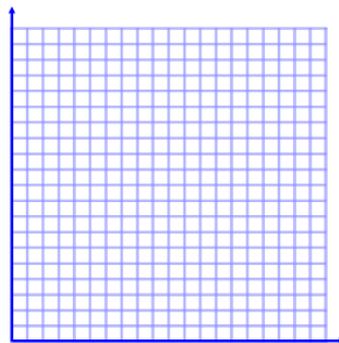
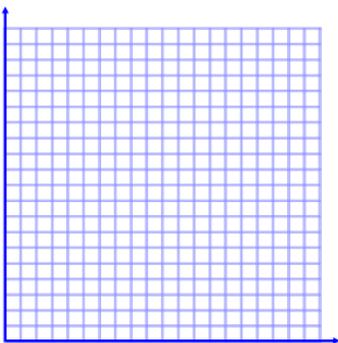
Examples:

1. _____
2. _____
3. _____

Components of a Normal Distribution



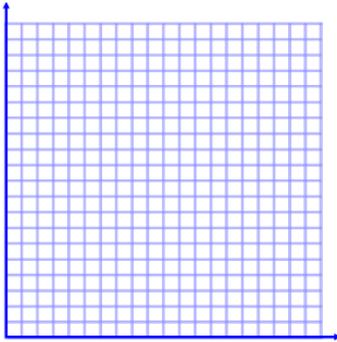
3. _____ Distribution: when a distribution shows bunching at one end and a long tail stretching out in the other direction.



Examples:

1. _____
2. _____
3. _____

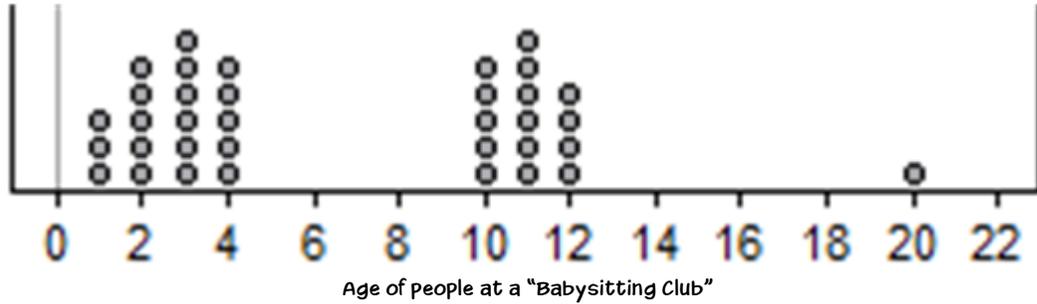
4. _____ Distribution: a distribution that forms two peaks.



Examples:

1. _____
2. _____
3. _____

Outliers, Gaps, Clusters



Section 2.2 Notes
Graphical Displays of Distributions

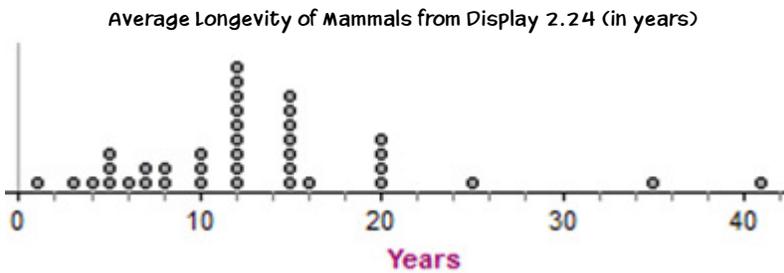
Quantitative vs. Qualitative (Categorical Data)

- _____ : counts on how many and measurements of how much.
- _____ : grouping cases into categories

Display 2.24 (p. 43) - Which are quantitative and which are qualitative measurements?

Categorical:	Quantitative

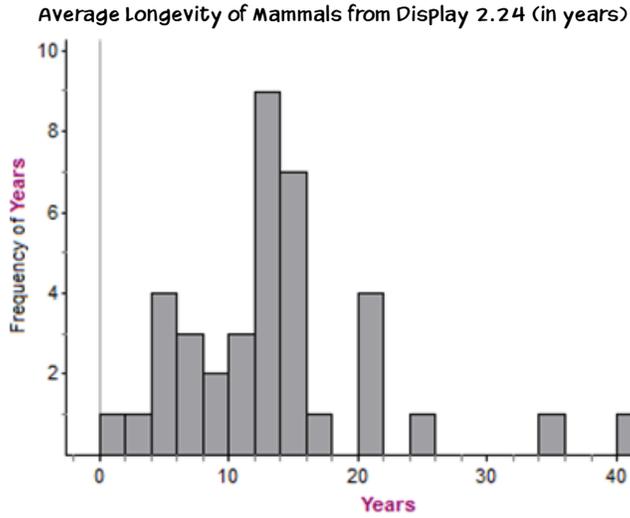
Dotplot:



Works best when...

1. _____
2. _____
3. _____
4. _____

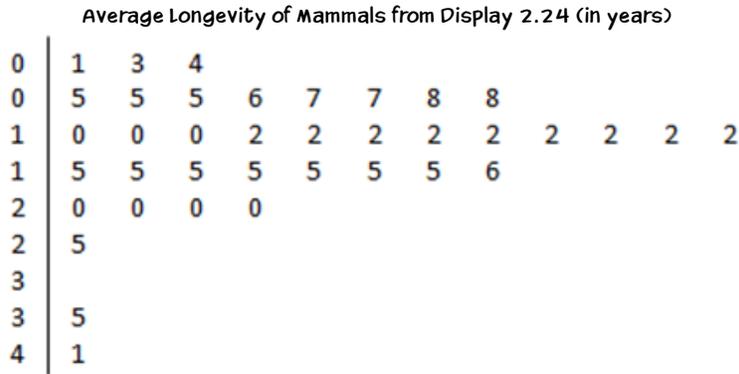
Histograms:



Notes:

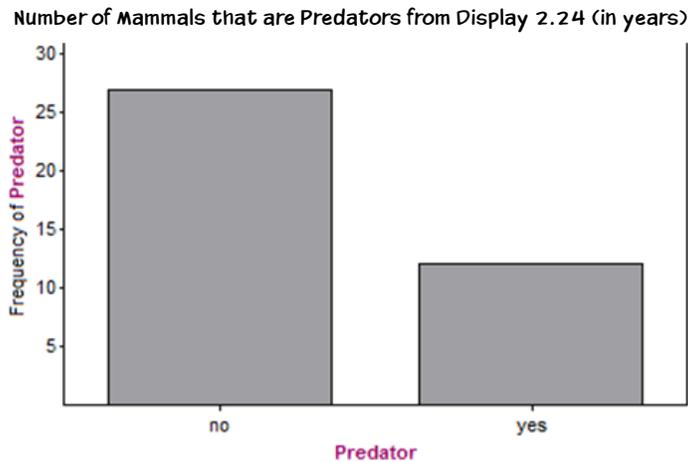
- Each bar is sometimes called a _____ or a _____.
- Sometimes changing the width of the bar will change the look of the _____.
- _____ shown on the _____ axis.
- To change frequency to _____ just divide the frequency by the total number of values in the data set.

Stemplot:



Key: 4|1 represents 41 years

Bar Graphs:



Section 2.3 Notes
Measures of Center and Spread

Measures of Center:

- _____
Formula for Mean: _____
- _____
- _____

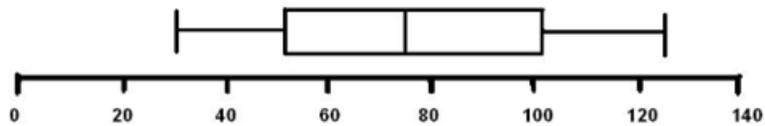
Boxplot:

Five Number Summary:

1. _____
2. _____
3. _____
4. _____
5. _____

IQR: _____

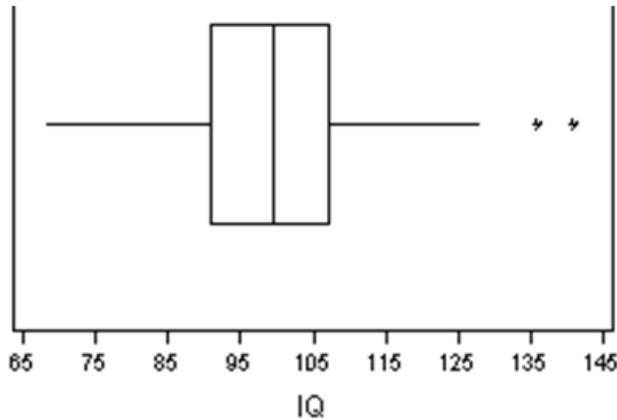
Annual snow depth at Mathsville Ski Resort



Outliers:

A value is an outlier if it is more than _____ times the IQR from the nearest quartile.

Modified Boxplot:



Standard Deviation:

Deviations: _____

Formula for Standard Deviation: _____

Example: Calculate all values from the following sample:

Sample of ages of AP Stats students:
16, 16, 16, 17, 17, 15, 17, 15, 17, 16

Measures of Center:

Mean: _____

Median: _____

Mode: _____

Five Number Summary:

Sm #: _____

Q1: _____

Median: _____

Q3: _____

Lg #: _____

Measures of Spread:

Range: _____

IQR: _____

St. Dev.: _____

Find the Mean and Standard Deviation in a Frequency Table:

Mean:	Standard Deviation:
-------	---------------------

Example: Find the mean and standard deviation from the following frequency table:

Age of AP Stats Students

Age	Frequency
15	7
16	15
17	18
18	7

Section 2.4 Notes
Working with Summary Statistics

_____ : adding the same number c to all the values in the set - doesn't change the shape or spread but slides the entire distribution by the amount c to the median and the mode.

_____ : multiplying all the values in the set by the same positive number d - doesn't change the basic shape but stretches or shrinks the distribution, multiplying the spread (IQR or standard deviation) by d and multiplying the center (median or mean) by d .

Example:

Original Set: 1, 2, 3, 4, 5	New Set #1: 3, 4, 5, 6, 7	Mean: _____	St. Dev.: _____
Mean: _____	New Set #2: 3, 6, 9, 12, 15	Mean: _____	St. Dev.: _____
St. Dev.: _____	New Set #3: 6, 8, 10, 12, 14	Mean: _____	St. Dev.: _____

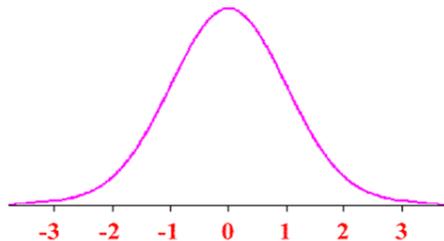
The Influence of Outliers:

Resistant to Outliers:	_____
Sensitive to Outliers:	_____

Section 2.5 Notes
The Normal Distribution

_____ : a normal distribution with mean of _____ and standard deviation of _____. The variable along the horizontal axis is called a _____.

The area under the curve is _____.



Examples:

- Given the distribution of the random variable z is a standard normal distribution, find the probability of randomly selecting a z value between -0.97 and 2.83 .
- Temperature readings at the freezing point of water are normally distributed with a mean of 0°C and a standard deviation of 1°C . Find the temperature corresponding to P_{80} , the 80^{th} percentile. That is, find the temperature separating the bottom 80% from the top 20% .

_____ : the number of standard deviations that a given x-value lies above or below the mean.

Formula: _____

How can we “unstandardized”? In other words, given the z score, how can we find the x?

Formula: _____

Example: Assume the body temperature of healthy adults are normally distributed with a mean of 98.20°F and a standard deviation of 0.62°F .

3. Find the probability of randomly selecting someone with a body temperature above 99.90°F . Is this temperature unusual?
4. Find P_{20} .

