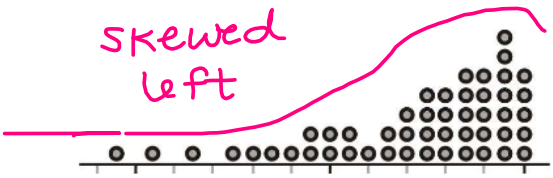
Statistical Reasoning
Chapter 2

Name:

Shape, Center, and Spread

Shape

skewed left



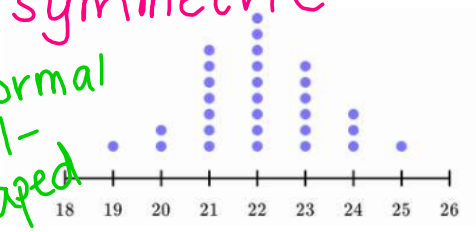
skewed right

outlier

gap

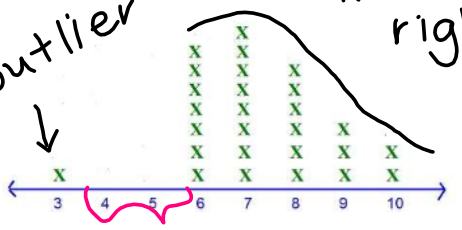
symmetric

normal bell-shaped

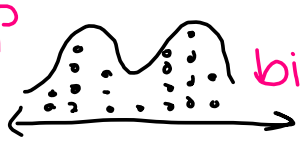


outlier

skewed right



gap

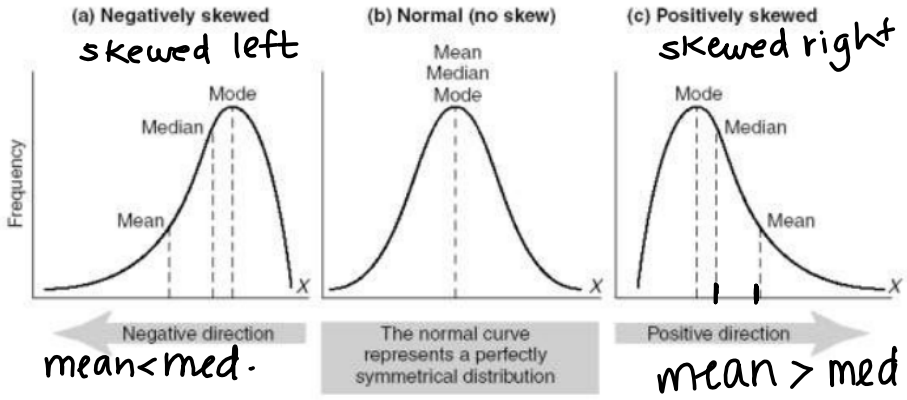


bimodal

Center

* Mean: average
* Median: middle #

Mode: # that appears the most

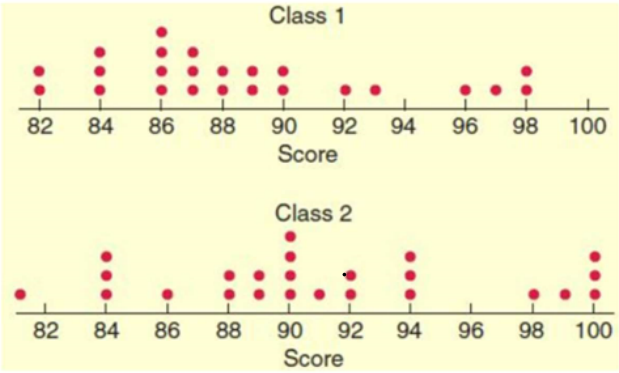


Spread

Range: max − min

* IQR: Q3 − Q1

* Standard Deviation: measures average dist. from mean

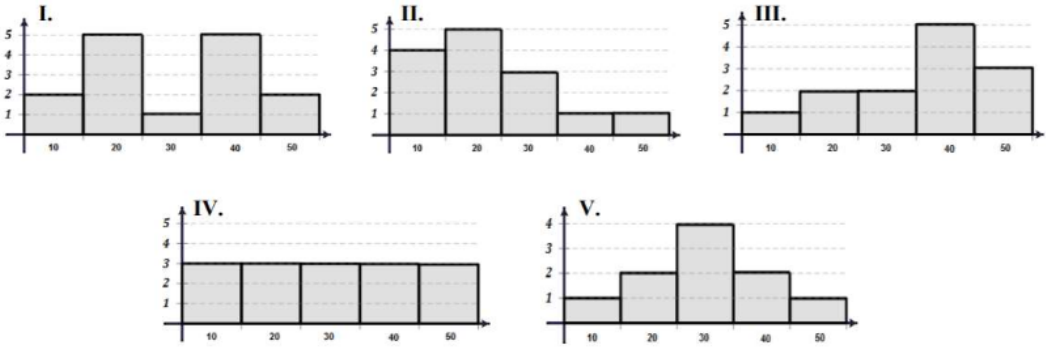


less spread
more consistent
lower S.D. (S_x)

more spread
less consistent
higher S.D. (S_x)

16. Match each distribution name with each histogram shown below.

V A. Symmetric Normal II B. Skewed Right III C. Skewed Left I D. Bi-modal IV E. Uniform



Choosing the best measure of center and spread..

If your data is normal/symmetric/has no outliers, the best measure of center is the mean and the best measure of spread is the standard deviation

If your data is skewed/has outliers, the best measure of center is the median and the best measure of spread is the interquartile range (IQR)

* five # summary *

Example 1: Number of text messages sent by teenagers in the last 24 hours:

0	7	1	29	25	8	5	1	25	98	9	0	26
8	118	72	0	92	52	14	3	3	44	5	52	

A: Find the 5 numbers summary.

B: Check for outliers.

C: Graph the boxplot (need a number line at the bottom). Then describe the shape.

D: Choose and justify the best measure of center and spread for this data.