

Station 1: Find the standard deviation, mean, and median. What does the difference in mean & median tell you about how the data is skewed?

a) 4, 7, 2, 6, 3, 3, 5, 2, 3, 2, 3, 3

Mean: 3.5833

Median: 3

Mean > Median so

Skewed right

Std Dev: 1.621354 → Std Dev.

Std Dev:

b) 46, 38, 48, 53, 36, 49, 51

Mean: 45.85

Median: 48

Mean < median so

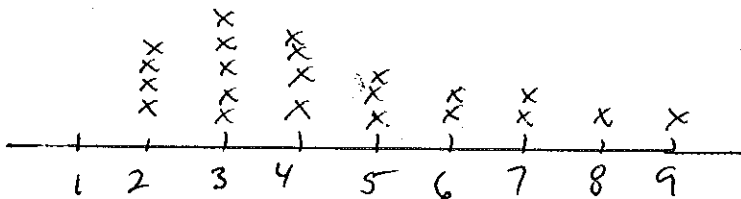
Skewed left

Std Dev: 6.47

Station 2: Make a dotplot for the following sets of data and determine what type of distribution represents that set of data.

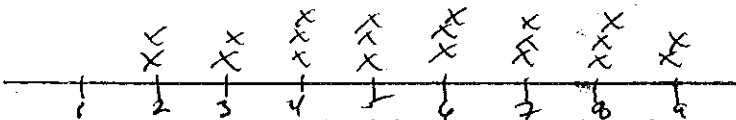
1) 2, 3, 6, 3, 5, 3, 5, 3, 6, 4, 2, 4, 4, 7, 8, 9, 7, 5, 3, 2, 2, 4

Skewed right



2) 3, 7, 9, 4, 6, 7, 7, 8, 4, 5, 6, 7, 9, 5, 3, 2, 8, 4, 8, 5, 7, 8, 6

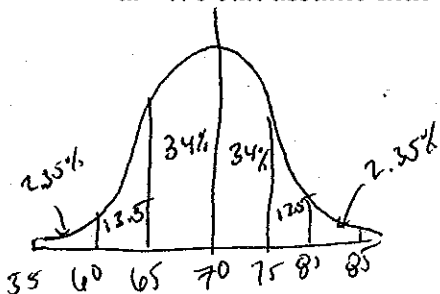
Uniform Distribution



Station 3: Assume each of the scenarios listed represent a normal distribution.

1. 2000 freshmen at State University took a biology test. The scores were distributed normally with a mean of 70 and a standard deviation of 5.

- What is the percentage of students who scored less than 65?
- What is the percentage of students who scored at least an 80?
- Approximately how many of the 2000 students had a score between 60 and 75?
- We can assume that almost all students (99.7%) would score between what two values?



a) 15.85%

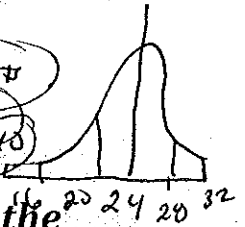
b) 97.35%

c) $0.475(2000) = 950$

d) 55 and 85

2. 500 juniors at Central High School took the ACT last year. The scores were distributed normally with a mean of 24 and a standard deviation of 4.

- What percentage of students scored a 16 or less? 2.35%
- How many students scored higher than a 20? $0.8385 (500) \approx 419$ students
- If Jonathan scored a 28, what percentage of students scored higher than him? 2.35%
- Approximately how many students scored between a 20 and 28? $6.8\% (500) \approx 340$

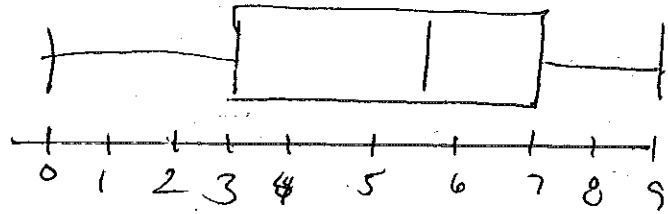


Station 4: Find each quartile and interquartile range for each of the following sets of data. Then make a box plot!

1) ~~3, 7, 9, 4, 2, 7, 2, 8, 4, 5, 6, 0, 7, 9, 7~~

0, 2, 2, 3, 4, 4, 5 | 6, 7, 7, 7, 8, 9

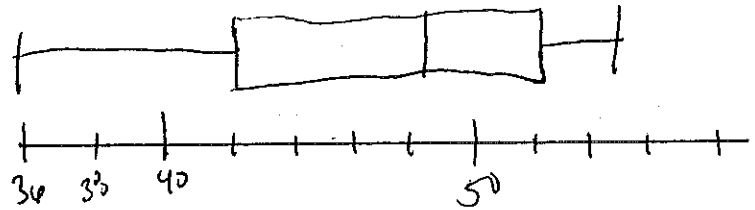
Q1 5.5 Q3
 Median



2) ~~46, 38, 48, 53, 38, 49, 51, 55~~

36, 38, 46, 48 | 49, 51, 53, 55

42 48.5 52
 Med Q3



Station 5: Give an example of each type of sampling:

- Random - Picking students randomly by number
- Convenience - Picking students closest
- Stratified - Random students are picked from like groups
- Cluster - Random students are picked from naturally occurring groups
- Systematic - Picking every 3rd student

Station 6: a) What are the principles of experimental design? Control, Random, Replication

b) Draw/explain an example of each experimental design:

- Randomized Design** - giving people random treatments
- Blocked Design** - grouping by characteristic, then giving treatment
- Matched Pairs Design** - Giving same treatment to same or similar "people"