

Algebra 1: Review of data analysis and Probability

Topic 1: Measures of central tendency and spread

Mean: THE AVERAGE OF A SET OF NUMBERS.

Median: WHEN ALL THE NUMBERS ARE IN ORDER, IT IS THE MIDDLE NUMBER. ALSO CALLED THE CENTER

Mode: THE NUMBER THAT IS REPEATED THE MOST, THERE CAN BE NONE, ONE, OR MULTIPLE MODES

Range: (SPREAD). THE HIGHEST VALUE MINUS THE LOWEST VALUE

Data Set: Below is a set of test scores from the most recent test in Dr. Oldham's class

89 95 100 85 75 88 100 22 78 81

1) Find the mean, median, mode and range

22, 75, 78, 81, 85, 88, 89, 95, 100, 100

median = 86.5 mean = 81.3 mode = 100 range = 78

2) Which measure of central tendency describes the data the best and why?

median because more of the scores were above 81.3. The

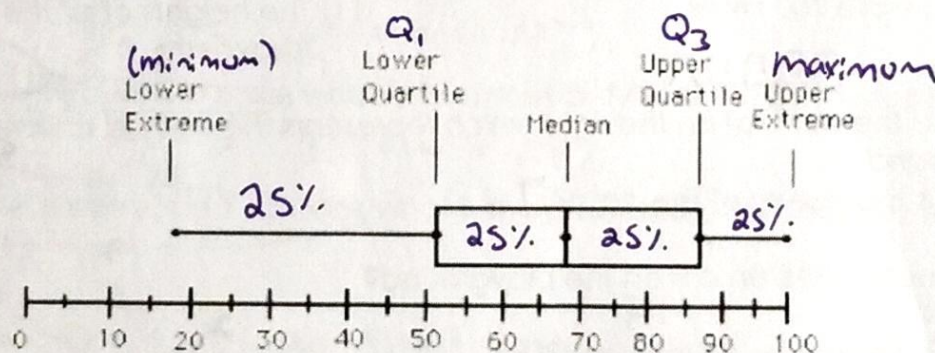
Score of 22 brought down the class average

Topic 2: Box and Whisker Plots

Lower quartile: ALSO CALLED Q_1 . IT IS THE median (quartile) OF THE lower half OF THE data

Upper quartile: also called Q_3 . It is the median (quartile) OF THE upper half OF THE data

The 5 number summary: The 5 numbers needed to make a box-and-whisker plot
minimum, Q_1 , median, Q_3 , maximum

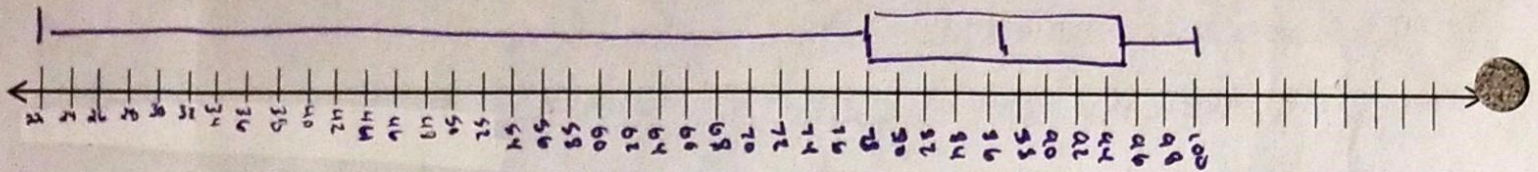


CALCULATOR STEPS (Ti-36X Pro): go to [data], type in all your data (doesn't need to be in order). Then press [2nd] [data] to get to stat-reg/distr. Choose option 2: 1-var stats. \bar{x} is the mean. Scroll down until you get your 5-number summary (min, Q_1 , med, Q_3 , max)

22, 75, 78, 81, 85, 88, 89, 95, 100, 100
min Q_1 med 86.5 Q_3 max

3) Make a box and whisker plot for the test data

min Q_1 med Q_3 max
22, 78, 86.5, 95, 100



4) 25% of the data is less than 78

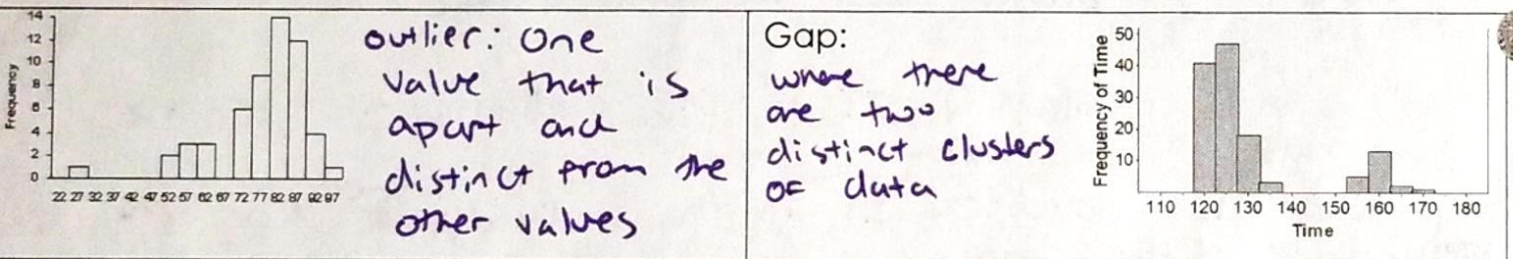
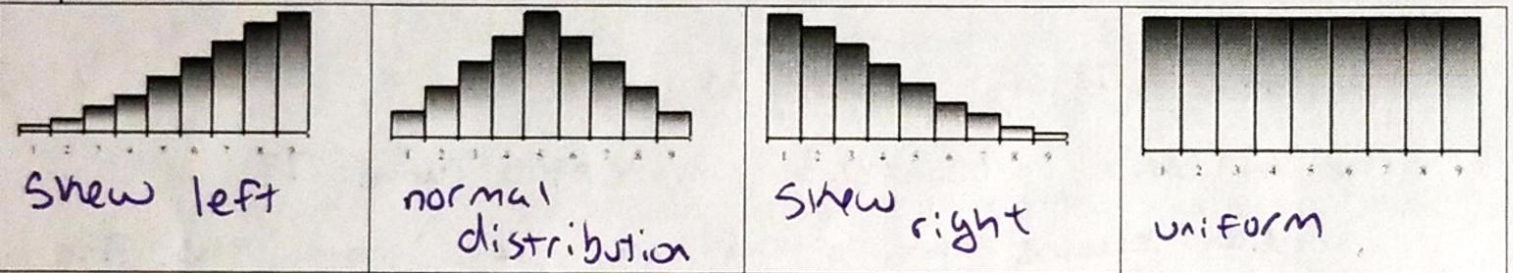
5) The middle 50% of the data is between what values? 78 AND 95

6) How many students scored above a 78%? 75%.

7) Would you say that the students did well or not well on the test? Use data to justify your explanation yes 75% scored higher than a 78. There was an outlier of 22 but that student is not representative of the class.

Topic 3: Analyzing data representations

Shape:



For #8-11 describe the shape of the following sets of data

8) A really hard test

Skew left



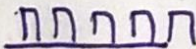
9) A really easy test

Skew right



10) Rolling a die 100 times

Uniform



11) The heights of all the females at

Sprayberry

normal distribution



For #12-16 use the dot plot on the right which represents the ages of children playing at a local playground

12) What is the center of the data? 7

13) How many children are on the playground?

14

14) What is the spread of the data?

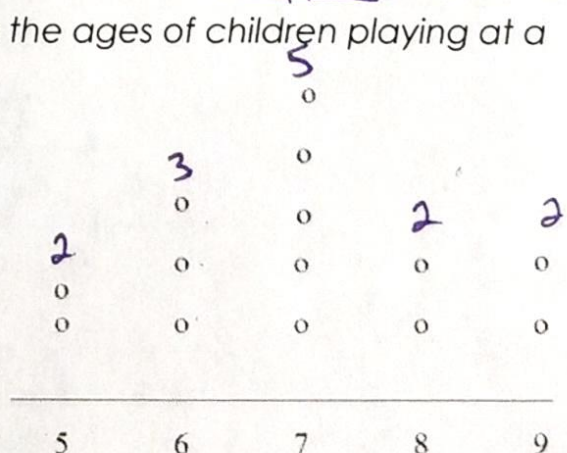
4-5

15) How many children are under 8 years old?

10

16) Describe the shape of the data

normal



Topic 4: Two-way frequency charts

17) How many students were surveyed?

135

18) How many total males were asked?

78

19) How many students took yearbook?

35

20) How many males take band?

12

21) What is the probability that a randomly selected student participated in chess?

$$\frac{19}{135} = .14 \times 100 = 14\%$$

22) What is the probability of randomly selecting a male yearbook student?

$$\frac{28}{135} = .21 \times 100 = 21\%$$

23) What is the probability that a student who was randomly selected was a female band student?

$$\frac{21}{135} = .16 \times 100 = 16\%$$

24) What is the probability that a randomly selected student was a male?

$$\frac{78}{135} = .58 \times 100 = 58\%$$

Conditional Probability: A probability where a condition is in place that changes the denominator

25) Out of the females how many are in the band?

$$\frac{21}{57} = .37 \times 100 = 37\%$$

26) Out of the Chorus students how many are males?

$$\frac{15}{32} = .47 \times 100 = 47\%$$

27) Given that the student is a male what is the probability that they participate in Chess?

$$\frac{16}{78} = .21 \times 100 = 21\%$$

28) Given that the student is in Yearbook what is the probability that they are female?

$$\frac{7}{35} = .20 \times 100 = 20\%$$

Participation in School Activities

School Club	Gender		
	Male	Female	Totals
Band	12	21	33
Chorus	15	17	32
Chess	16	3	19
Latin	7	9	16
Yearbook	28	7	35
Totals	78	57	135