

AFM Study Guide:

①.

15	23 3 6 7
16	0 0 2 2 3 6 7
17	5 7 8
18	1 3 6
19	
20	6 6
21	
22	8

② histogram in Calc.

③ 5# Summary

$$\text{min} = 152$$

$$Q1 = 158.5$$

$$M = 166$$

$$Q3 = 182$$

$$\text{max} = 228$$

④ IQR: $Q3 - Q1 = 23.5$

⑤

⑥ outlier @ $x = 228$ (max)
removing the outlier wouldn't change the boxplot drastically.

⑦ $\bar{x} : 172.9$

$M : 166$

mode: $153 + 162$

← is best b/c of Skewness.

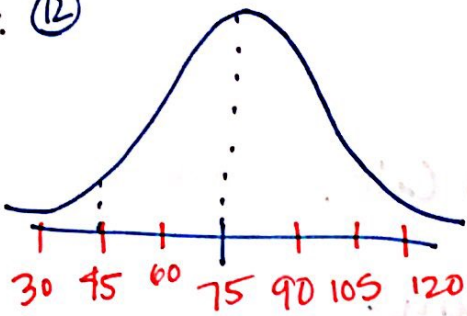
⑧ 1 less would drop our mean & median by 1
std Dev would not change.

⑨ $\frac{225 - 172.9}{20.16} \approx 2.58$ std Dev above \bar{x} .

⑩ 68% falls w/in 1 SD.
95% falls w/in 2 SD.
99.7% falls w/in 3 SD.

⑪ $\text{normcdf}(232, 1e99, 172.9, 20.16) \approx .00168$

II: (12)



(13)

$$45 < X < 75$$

$$34 + 13.5 = 47.5\%$$

$$\text{normcdf}(45, 75, 75, 15) \approx 47.72\%$$

(14)

$P(X > 60) \approx \text{normcdf}(60, 1299, 75, 15) \approx 84\%$ of 1000 = 841 students are expected to pass :)

(15)

mean

Median is btwn 80-90 (B)

total: 27

mode: 80-90 (B)

(16)

mean will inc by 5 but StdDev will not.

(17)

5# summary wouldn't change drastically. But the additional test will make the mean come down slightly.

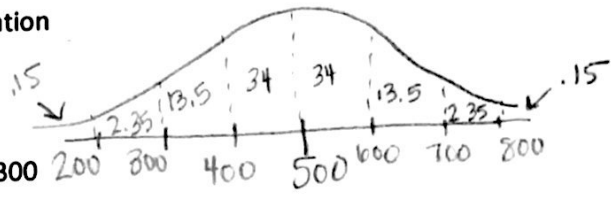
(18)

more variation can be found by comparing range (max-min) and the spread (SD, IQR).

Univariate Test Review

1. In a certain large school district, the set of all standardized mathematics scores is normally distributed with mean $\bar{x} = 500$ and standard deviation $s = 100$.

a. Make a sketch of the distribution showing the scores at each standard deviation. Also show the percents of the scores at each standard deviation



b. Find the percent of scores that are less than 300

2.5%

c. Greater than 700

2.5%

d. Between 400 and 600

68%

e. Less than 800

$1 - 0.15 =$

99.85%

f. What scores fall within the middle 99.7%

200 - 800

g. What percentile does a score of 300 fall?

$\approx 2.5\%$

2. The reaction times of all people in a psychology experiment were normally distributed with a mean of $\bar{x} = 2$ seconds, and a standard deviation of $s = 0.5$ sec.

a. Find the percent of reaction times that are

i. Less than 0.8 seconds

$\approx .8\%$

ii. Greater than 2.7 seconds

$\approx 8.1\%$

iii. Between 1.6 seconds and 3.4 seconds

$\approx 78.6\%$

b. Find the reaction time at 69.15 percentile

2.25 sec

c. Find the reaction time at 13.57 percentile

1.45 sec