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Section 1A

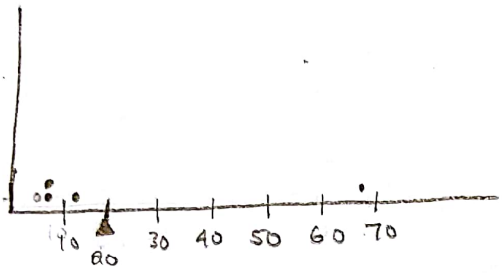
Week 3 HomeWork

3.2 b

3.6

[a] $\frac{67+11+7+7+5}{5} = 19.4$ = mean

[b]



[c] $\sqrt{\sum \frac{(x-\bar{x})^2}{n-1}} = \sqrt{\frac{(67-19.4)^2+(11-19.4)^2+(7-19.4)^2+(7-19.4)^2+(5-19.4)^2}{5-1}}$

Standard deviation = 26.70

[D] 67 is farthest from the mean since it's 47.6 from the mean while other numbers don't even come close to being 47.6 from the mean.

3.12

[a] The means are higher for those in pre algebra

[b] The mean is higher for mothers

[c] Pre-Algebra Mothers have the smallest standard deviation

3.16 Group A since the graph is less distributed about the mean & have greater spread.

3.18

[a] 52.2 cm + 2.5 cm = 54.7 cm 52.2 cm − 2.5 cm = 49.7 cm

The range is 49.7 cm to 54.7 cm for 1 std Deviation

[b] 54 cm is not more than 1 std deviation above the mean since $\frac{54-52.2}{2.5} < 1$ meaning it is under 1 std deviation

3.30

[a] $\frac{1600-2400}{400} = -2$ $\frac{3200-2400}{400} = 2$

Thus, since std deviation is 2, I believe 95% of northeastern states have crime rates between 1600 & 3200

[b] $\frac{2800-2400}{400} = 1$ $\frac{2000-2400}{400} = -1$

Since std deviation is 1, I believe 68% of northeastern states would have crime rates between 2000 & 2400

[c] No since that would be an outlier since $\frac{|400-2400|}{400}$ is 6 std deviation away from mean which is unusual

3.32

a] z score $= -1 = \frac{x - 64}{3} \Rightarrow -3 = x - 64 \quad x = 61$

height of woman with -1 z score is 61 inches

b] z score $= \frac{70 - 64}{3} =$ 2 = z score

3.34

They are both the same since neither lie 2 std deviations away from the mean

272 ± 9 is still only 1 std deviation away for babies born 9 days early/late.

Thus, they would both occur in equal chance. Also, since they are 1 std deviation away, neither are unusual or outliers

3.38

a] $\frac{x - 500}{100} = -1.5 \Rightarrow -150 = x - 500$

SAT score = 350 for z score of -1.5

b] $\frac{x - 500}{100} = 1.8 \quad x - 500 = 180 \quad x = 680$

SAT score with z score of 1.8 is 680

3.42

Median is $\frac{218 + 217}{2} = 217.5$

a]

b] $Q_1 = 198$

$Q_3 = 268$

Interquartile range $= Q_3 - Q_1 = 268 - 198 = 70$

3.50

If I was a player, I would use the median salary since there is such a large discrepancy, but if I was the owner, I would use the average since that number is much higher, defending the owners argument that the strike is not needed; For the player, they could say their salary is lower $ demand an increase with the median. There is a huge gap due to outliers or shape is bimodal.

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Section 1 A

3.52

a) Mean & std deviation since there are more data points close to the center & since the shape is bell shaped

b) I would say median & interquartile range since data has greater spread & skewed to the right

c) Median since outliers are present in Town B

d) Mean & Median are closer in Town A since shape is bell shaped & symmetrical

e) Town B would have mean & medians further apart since there is skew in the graph to the right

3.58

Men have a greater variation in brain size since IQR is larger for men

3.60

x: M
y: C
z: P

Homework Poll

Yes, I own a laptop & can bring it to class