

## Stat 145: Exam 1 Review Answers

- Roughly 100 students had less than \$20 in their possession (add the heights of the bars to the left of 20).
  - The distribution is skewed to the right. The center is between 10 and 20. The data ranges from a low of about 0 to a high of about 110 with the outlier and a low of about 0 to a high of about 60 without the outlier. (*Note: If the distribution contains outliers, you should give the spread with and without the outliers.*)
  - The standard deviation will decrease, as removing the outlier will decrease the spread of the data.
- The  $z$ -value is:

$$z = \frac{305 - 300}{3} \doteq 1.67$$

Using Table A, the answer is  $1 - .9525 = .0475$ , or 4.75%.

- The  $z$ -values are:

$$\begin{aligned} z_1 &= \frac{297 - 300}{3} = -1 \\ z_2 &= \frac{301.5 - 300}{3} = 0.5 \end{aligned}$$

Using Table A, the answer is  $.6915 - .1587 = .5328$ , or 53.28%.

- The area to the left of  $x$  is .25. The closest value to .25 in the body of Table A is  $z = -0.67$ . Thus,

$$\begin{aligned} \frac{x - 300}{3} &= -0.67 \\ x - 300 &= 3(-0.67) \\ x = 300 &= 3(-0.67) \\ x &\doteq 298 \end{aligned}$$

- The mean is:

$$\begin{aligned} \bar{x} &= \frac{80 + 90 + 100}{3} \\ &= 90 \end{aligned}$$

The standard deviation is:

$$\begin{aligned}s &= \sqrt{\frac{(80 - 90)^2 + (90 - 90)^2 + (100 - 90)^2}{3 - 1}} \\ &= \sqrt{\frac{200}{2}} \\ &= \sqrt{100} \\ &= 10\end{aligned}$$

4. (a) Split stems should be used in the stemplot.

19		9
20		023
20		7889
21		0000234
21		578
22		1

- (b) The five-number summary is: 199 207 210 214 221.
5. (a) Group 1 had the larger median pulse rate.
- (b) Between 75 ( $Q_1$ ) and 110 ( $Q_3$ ).