

STA 2e: Sect. 3.2 Worksheet #1
68%-95%-99.7% RULE INTERPRETING Z-SCORES

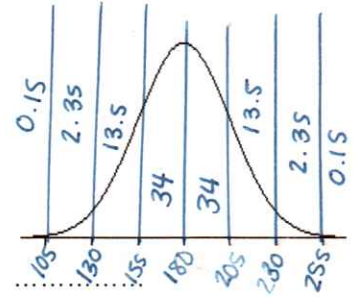
Name _____

- If a person has a negative z-score, did the person score higher or lower than the mean? *lower*
- If a person has a negative z-score, it does not always mean that the person did not do well. Name a sport where having the lowest z-score would be the most desirable.

*golf; swimming/running
 (fastest/lowest time wins)*

For #3 – 9: The mean weight of adult American men is 180 pounds with standard deviation of 25 pounds. The weights are approximately normally distributed. Use the 68%-95%-99.7% Rule to approximate each of the following.

- Using the values given above, label the normal curve at the right with the numerical values for μ , $\mu \pm \sigma$, $\mu \pm 2\sigma$ and $\mu \pm 3\sigma$.
- What percent of all adult American men have a weight less than 130 pounds? *2.5%*
- What percent of all adult American men have a weight between 130 and 205 pounds? *(130, 205) 81.5%*
- What percent of all adult American men have a weight less than 230 pounds? *97.5%*
- What percent of all adult American men have a weight less than 105 pounds? *0.15%*
- The heaviest 16% of all men in weight weigh more than how many pounds? *more than 205 lbs*
- What weight separates the lowest 2.5% of all American men in weight from the remaining weights? *130 lbs*



For #10 – 17: Elephants have the longest pregnancy of all mammals. One species of elephant has a mean gestation period of 525 days and standard deviation of 32 days. Pregnancy length follows an approximately normal distribution. Use the 68%-95%-99.7% Rule to approximate each of the following.

- Using the values given above, label the normal curve at the right with the numerical values for μ , $\mu \pm \sigma$, $\mu \pm 2\sigma$ and $\mu \pm 3\sigma$.
- The longest 16% of all elephant pregnancies last at least how many days? *557 days*
- The middle 68% of all elephant pregnancies last between and days. *493 - 557 days*
- Only 2.5% of all elephant pregnancies last longer than *589* days.
- What percent of elephant pregnancies last less than 461 days? *2.5%*
- What percent of elephant pregnancies last between 525 and 557 days? *34%*
- What percent of elephant pregnancies last between 493 and 589 days? *81.5%*
- What percent of elephant pregnancies last less than 557 days? *84%*

