Name: _____

Stat 101
Summer 2023 Session 1
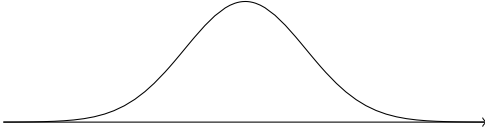Dr. Lily Yen

# Activity 4-1
Show all your work

Number: _____

Signature: _____

Score: ___/7

**State all Excel functions used.**

**Problem 1**: Below is a normal curve. Mark on the horizontal axis, the mean $\mu$, and 3 standard deviations on each side of the mean. How many percent of data is captured within one standard deviation from the mean? Two standard deviations? Three?
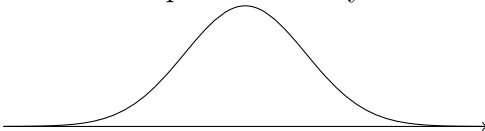


Score: /1

**Problem 2**: On the normal curve given below, mark on the horizontal axis its mean, $\mu = 40$, and standard deviation, $\sigma = 10$. Shade the region whose area equals $P(X \leq 45)$. Find the probability on Excel accurate to 6 decimal places.
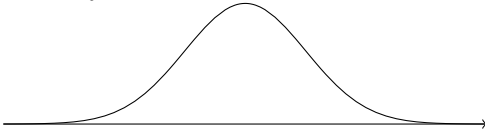


NORM.DIST$(45, 40, 10, TRUE) \approx 0.691462$.

Score: /2

**Problem 3**: Shade on the standard normal curve the probability $P(-0.2 < X \leq 0.3)$. Find it to 6-decimal place accuracy on Excel.
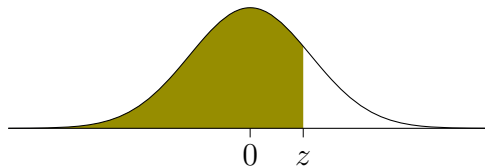


NORM.S.DIST$(0.3, TRUE) -$ NORM.S.DIST$(-0.2, TRUE) \approx 0.197171$.

Score: /1

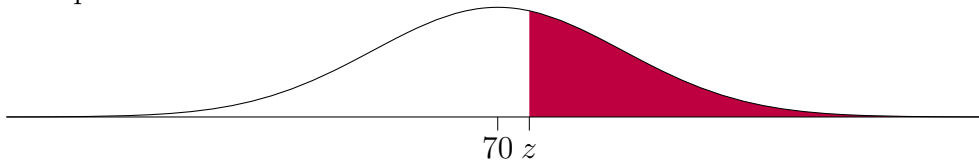**Problem 4**: Below is a standard normal curve. Find $z$ accurate to 6 decimal places such



that $P(X < z) = 0.81$.

NORM.S.INV$(0.81) \approx 0.877896$

Score: /1

**Problem 5**: Find the cutoff height in inches for the upper 40% of men in the States. Namely, find $z$ such that $P(X \geq z) = 0.4$ given $\mu = 70$ and $\sigma = 3.3$ both in inches. Provide $z$ to 6 decimal places.

70 $z$

Since $z$ that marks the upper 40% is the same as marking the lower 60%, one can use NORM.INV$(0.6, 70, 3.3) \approx 70.836045$.

Score:     /1

**Problem 6**: Find the probability of US men with heights between 68 inches and 73 inches, using the same $\mu = 70$ and $\sigma = 3.3$ both in inches. Provide a 6-place accuracy.

68    70        73
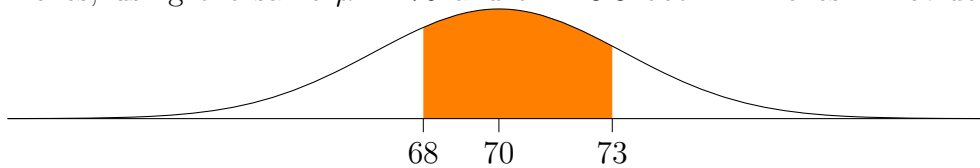
NORM.DIST$(73, 70, 3.3, TRUE)-$NORM.DIST$(68, 70, 3.3, TRUE) \approx 0.54611168$

Score:     /1