STAT/MA 41600
In-Class Problem Set #35: November 9, 2015

1. Suppose that X is a Normal random variable with mean 1.2 and standard deviation 0.5.

1a. Find $P(1 < X < 2)$.

1b. Find $P(X > 1.4 \text{ or } X < 1)$.

1c. Find the probability that X is nonnegative.

2. Same setup as #1.

2a. Find a value a such that $P(X \leq a) = 0.10$.

2b. Find a value b such that $P(X \geq b) = 0.10$.

2c. Find a value c such that $P(1.2 - c < X < 1.2 + c) = 0.30$.

3. In a certain Chemistry class, the student scores are approximately normally distributed, with mean 72.5% and standard deviation 6.9%.

If the cutoffs on the exam are 90/80/70/60 for A, B, C, D, what percentage of students receive a score an A? B? C? D?

[[Please do not be stressed about this question. This is not Dr. Ward's class. Remember that our own course policy, for instance, states that "Dr. Ward also reserves the right to be more lenient in the grading scale."]]

4. Suppose that the heights of blades of grass are Normally distributed, with each height having expected value 4 inches and standard deviation 0.75 inches.

4a. What is the chance that a random blade of grass is 9 cm or less? (Just FYI: There are 2.54 cm per inch.)

4b. A seed company wants to know the value a such that 90% of the blades of grass are between height $4 - a$ inches and $4 + a$ inches. What is the right value of a?