

Math 153 - Quiz 8

October 29, 2015

Name key

Score _____

Show all work. Supply explanations when necessary.

1. (3 points) According to a CBS/NYT poll, 43% of registered voters are now paying a lot of attention to the presidential campaign. Suppose 50 registered voters are selected at random. What is the probability that at least 24 of them are paying a lot of attention to the campaign?

BINOMIAL w/ $n=50, p=0.43$

$$P(x \geq 24) = 1 - P(x \leq 23) = 1 - \text{binomcdf}(50, 0.43, 23) \approx 0.2826$$

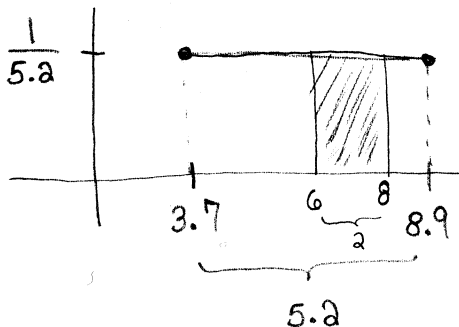
2. (3 points) On average, there are 189 sunny days per year in Chicago. In any given year, what would be an unusually small number of sunny days?

Poisson w/ $\mu = 189$

$$\mu - 2\sigma = 189 - 2\sqrt{189} \approx 161.5$$

161 DAYS WOULD BE AN UNUSUALLY SMALL NUMBER.

3. (4 points) The craft beers at a local microbrewery have alcohol-by-volume (ABV) contents that are uniformly distributed between 3.7% ABV and 8.9% ABV. If a beer is selected at random, what is the probability that its ABV is between 6% and 8%? Sketch the probability density curve associated with the distribution.



$$P(6 \leq x \leq 8) = 2 \left(\frac{1}{5.2} \right) \approx 0.3846$$