Math 153 - Quiz 8

April 9, 2015

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (6 points) The weights of yearling Angus steers are approximately normally distributed with mean 1152 lbs and standard deviation 84 lbs.

   (a) About what percent of steers have weights between 1111 lbs and 1222 lbs?

   $P(1111 \le x \le 1222) = \text{normalcdf}(1111, 1222, 1152, 84)$

   $\approx$ 0.4849

   (b) A steer is selected a random. What is the probability that the steer weighs more than 1250 lbs?

   $P(x > 1250) = \text{normalcdf}(1250, 99999, 1152, 84)$

   $\approx$ 0.1217

   (c) What is the probability that a randomly selected steer weighs exactly 1153 lbs?

   $P(x = 1153) =$ 0

   (d) What weight is at the 95th percentile?

   $x = \text{invNorm}(0.95, 1152, 84) \approx$ 1290.2 lbs

2. (4 points) Biologists studying Australia's Long-Nosed Bandicoot have found that adult males have a mean weight of 6.73 lbs with a standard deviation of 0.47 lbs. Assume that bandicoot weights are normally distributed.

   (a) In a sample of 235 adult male bandicoots, about how many weigh less than 6.18 lbs?

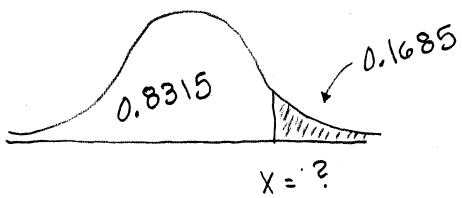
   $P(x < 6.18) = \text{normalcdf}(-99999, 6.18, 6.73, 0.47)$

   $235 \times \text{normalcdf}(-99999, 6.18, 6.73, 0.47) \approx 28.425$

   $\approx$ 28

   (b) A nature preserve is the home of 89 adult male bandicoots. Biologists are interested in tagging the heaviest 15 of the bandicoots. About how heavy will the lightest of those be?

   $\frac{15}{89} \approx 0.1685$

   $\text{invNorm}(0.8315, 6.73, 0.47)$

   $\approx$ 7.18 lbs