Math 153 - Quiz 8

October 30, 2014

Name key

Score _____

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

1. (4.5 points) Suppose x is a random variable from a normal distribution with $\mu = 13.6$ and $\sigma = 2.7$. Determine each the the following probabilities.

   (a) $P(x = 13.2)$ = 0

   (b) $P(12 < x \leq 14)$ = normalcdf(12, 14, 13.6, 2.7) = 0.2822

   (c) $P(x > 13.85)$ = normalcdf(13.85, 99999, 13.6, 2.7)

   = 0.4631

2. (2.5 points) In a recent year, SAT scores were normally distributed with mean 1498 and standard deviation 316. What is the probability that a randomly selected test has a score less than 1350?

   $P(x < 1350)$ = normalcdf(-99999, 1350, 1498, 316)

   = 0.3198

3. (3 points) Heights of U.S. women aged 20–29 are normally distributed with mean 64.2 in and standard deviation 2.9 in. In a group of 750 women, about how many are taller than 68 in?

   $750 \cdot P(x > 68)$

   = 750 · binomialcdf(68, 99999, 64.2, 2.9)

   ≈ 71.3

   → About 71 women