

# Math 153 - Quiz 9

November 8, 2012

Name key

Score \_\_\_\_\_

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

1. (6 points) A stay in a U.S. emergency room has an average length of 222 minutes with a standard deviation of 27 minutes. Assume stay lengths are normally distributed.

- (a) What is the probability that a stay will last less than 60 minutes?

$$\begin{aligned} P(x < 60) &= \text{normalcdf}(-99999, 60, 222, 27) \\ &= \underline{9.9 \times 10^{-10}} \approx 0^+ \end{aligned}$$

- (b) About how many patients in a group of 700 will have stays that last between 190 minutes and 250 minutes?

$$\begin{aligned} 700 \times P(190 < x < 250) &= 700 \cdot \text{normalcdf}(190, 250, 222, 27) \\ &= 512.51795 \approx \underline{513} \end{aligned}$$

- (c) Find the stay length at the 75th percentile.

$$P(x < k) = 0.75 \quad \text{Find } k.$$

$$\text{invNorm}(0.75, 222, 27) = \underline{240.211}$$

2. (4 points) Heights of men are normally distributed with mean 69.0 in and standard deviation 2.8 in.

- (a) At 91 in, Manute Bol was one of the tallest NBA players of all time. What is the probability that a man is taller than Manute Bol?

$$\begin{aligned} P(x > 91) &= \text{normalcdf}(91, 99999, 69, 2.8) \\ &\approx \underline{2 \times 10^{-15}} \approx 0^+ \end{aligned}$$

- (b) What are the heights of unusually tall men?

$$\mu + 2\sigma = 69 + 2(2.8) = \underline{74.6 \text{ in}}$$

MEN TALLER THAN 74.6 IN ARE

UNUSUALLY TALL.