

# Math 153 - Quiz 9

November 5, 2015

Name key

Score \_\_\_\_\_

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

1. (6 points) Suppose  $x$  is a random variable from a normal distribution with  $\mu = 15.7$  and  $\sigma = 2.3$ . Determine each the the following probabilities.

(a)  $P(x = 15.2) = 0$

(b)  $P(14 \leq x < 17) = \text{normalcdf}(14, 17, 15.7, 2.3)$   
 $\approx 0.4841$

(c)  $P(x < 14.85) = \text{normalcdf}(-\infty, 14.85, 15.7, 2.3)$   
 $\approx \text{normalcdf}(-99999, 14.85, 15.7, 2.3)$   
 $\approx 0.3559$

2. (4 points) In a recent year, SAT scores were normally distributed with mean 1498 and standard deviation 316.

- (a) What is the probability that a randomly selected test has a score less than 1375?

$P(x < 1375) = \text{normalcdf}(-99999, 1375, 1498, 316)$   
 $\approx 0.3485$

- (b) What SAT score is at the 80th percentile?

$\text{invNorm}(0.80, 1498, 316)$   
 $\approx 1763.95$