

Name: _____
Summer 2018

MAT 121
Homework 7

Problem 1: Scores from a recent major college entry exam were approximately normal with mean 78 and standard deviation 5.

(a) What proportion of students scored below a 65?

(b) What proportion of students scored above a 85?

(c) What proportion of students scored between 65 and 85?

(d) What score would a student need to receive in order to score in the top 7%?

Problem 2: An Olympic archer named Kantmiss Evergreen is able to hit the bull's eye 90% of the time. Assume each shot is independent of the others.

- (a) If she shoots 5 arrows, what is the probability that she misses the bull's eye exactly one?

- (b) If she shoots 5 arrows, what is the probability that she misses at most once?

- (c) Suppose she will be shooting 200 arrows in a large competition. Let X be the number of bull's eyes she gets. What is the approximate distribution of the number of bull's eyes X ? What are the mean and standard deviation of X ?

- (d) Suppose she made only 171 bull's eyes in 200 arrows. Use the normal approximation to estimate the probability that she makes 171 or less bull's eyes in 200 shots.

- (e) Recalculate (d) using the continuity correction to improve the estimate.