

Name: _____
Summer 2018

MAT 121
Lab 3

Problem 1: The mean replacement time for a random sample of 19 washing machines is 9.5 years and the standard deviation is 2.4 years.

(a) Construct a 90% confidence interval for the mean replacement time.

(b) Construct a 99% confidence interval for the standard deviation of the replacement time of all washing machines of this type.

Problem 2: The U.S. Marine Corps requires that male applicants have heights between 64 in and 78 in. Assume the heights of men are normally distributed with a mean of 68 in and standard deviation of 2.7 in.

(a) Find the percentage of men meeting those height requirements.

(b) If the Secretary of Defense is to change the requirements so that only the shortest and tallest 3% of applicants are going to be denied, what are these heights?

(c) If 32 men are randomly selected, find the probability that their mean height is greater than 67 in.

Problem 3: The board of directors of a company has 8 members.

(a) How many different possibilities are there for choosing a president, vice president, secretary, and treasurer assuming no person can hold more than one office?

(b) How many different possibilities are there are for a subcommittee consisting of 3 members?

Problem 4: In a simple random sample pre-election poll of 1,400 voters, 800 say they intend to vote for candidate A. Construct a 99% confidence interval for the percentage of voters who intend to vote for candidate A.

Problem 5: A committee of two people is to be formed from a group of 30 people consisting of 10 men and 20 women.

(a) How many different possible committees are there?

(b) How many different committees are made up of one man and one woman?

(c) How of these committees are made up of two women?

(d) If the committee is selected completely at random, what is the probability that the committee is made up of two women?