

22s:039

Homework 8

Assigned Friday, October 23

Due Friday, October 30

Chapter 5: Linear combinations of random variables

**Chapter 6: Numerical summaries, stem-n-leaf diagrams, boxplots
histograms, probability plots**

Chapter 7: Point estimation of parameters

For each problem, provide the solution and any work that can be used for partial credit.

1. In Iowa, many farms have their own silos for holding corn. At a specific farm with one silo, the capacity for the silo is 12,000 bushels of corn. During harvest, each wagon is filled and the corn from the wagon is placed in the silo.

The amount of corn in each wagon is normally distributed with a mean of 300 bushels and a standard deviation of 30 bushels (the variability is due to machine operator). Wagons are independent of each other.

What is the probability that if 39 wagons of corn are emptied into the silo, that the silo will be at or above capacity?

2. For the eight measurements below, calculate the sample mean and sample standard deviation.

74.001, 74.003, 74.015, 74.000, 74.005, 74.002, 74.005, and 74.004.

3. For the data below, construct a box plot of the data.

4.2, 4.7, 4.7, 5.0, 3.8, 3.6, 3.0, 5.1, 3.1, 3.8,
4.8, 4.0, 5.2, 4.3, 2.8, 2.0, 2.8, 3.3, 4.8, 5.0.

In problems 4-6, state whether the statement is true or false.

4. True/False

Normal probability plots require some judgment to interpret.

5. True/False

Probability plots can only be constructed for the normal distribution.

6. True/False

The variance of the difference between two independent random variables is the difference in the variances of the two individual random variables.

Also, do each of the book problems below:

7-03

7-07

7-08