

Engineering Probability and Statistics

Tut 1 Chapter 1

28/9/2016

1.2 According to the journal *Chemical Engineering*, an important property of a fiber is its water absorbency. A random sample of 20 pieces of cotton fiber was taken and the absorbency on each piece was measured. The following are the absorbency values:

18.71 21.41 20.72 21.81 19.29 22.43 20.17
23.71 19.44 20.50 18.92 20.33 23.00 22.85
19.25 21.77 22.11 19.77 18.04 21.12

- Calculate the sample mean and median for the above sample values.
- Compute the 10% trimmed mean.
- Do a dot plot of the absorbency data.

1.4 In a study conducted by the Department of Mechanical Engineering at Virginia Tech, the steel rods supplied by two different companies were compared. Ten sample springs were made out of the steel rods supplied by each company, and a measure of flexibility was recorded for each. The data are as follows:

Company A:	9.3	8.8	6.8	8.7	8.5
	6.7	8.0	6.5	9.2	7.0
Company B:	11.0	9.8	9.9	10.2	10.1
	9.7	11.0	11.1	10.2	9.6

- (a) Calculate the sample mean and median for the data for the two companies.
 - (b) Plot the data for the two companies on the same line and give your impression regarding any apparent differences between the two companies.
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1.8 Compute the sample variance and standard deviation for the water absorbency data of Exercise 1.2 on page 13.

1.10 For the data of Exercise 1.4 on page 13, compute both the mean and the variance in “flexibility” for both company A and company B. Does there appear to be a difference in flexibility between company A and company B?
