

**ENGI 4421 Probability & Statistics**  
**Assignment #2**  
**to be submitted by 2019 July 22 at 13:00**  
**either as a Word file through Brightspace (D2L)**  
**or in printed form in class**

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1. For the data set from Assignment #1 (at <http://www.engr.mun.ca/~ggeorge/4421/assigns/aa/BoltMasses19.txt> ) [5]  
generate a probability plot of the data to determine whether or not the data are consistent with having been drawn from a Normal distribution.
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2. A severe corrosion test is conducted on a particular type of steel beam. The times to failure (in hours) of a random sample of 100 beams are measured. The results are in the plain text file <http://www.engr.mun.ca/~ggeorge/4421/assigns/aa/CorrodeData19.txt> .  
Return a Minitab report that contains the following items.
- a) Summary statistics for the failure times, including [2]  
number of data, sample mean, sample standard error, sample standard deviation, minimum and maximum values and the three quartiles.
- b) A boxplot of the data, with gridlines and a change of colour and/or hatching [4]  
in the box. Also add a symbol on the boxplot for the sample mean.
- c) A histogram of the data, with a range from 0 to 70 h. [5]  
The width of the bins must be 5 h for the first two bins, 20 h for the last bin and the width of the four other bins must be 10 h.  
Add horizontal grid lines and change the colour of the bars.
- d) A probability plot of the data to determine whether or not the data are [4]  
consistent with having been drawn from a normal distribution.
- e) A probability plot of the data to determine whether or not the data are [5]  
consistent with having been drawn from an **exponential** distribution.
- f) A one-sided confidence interval on the true mean failure time  $\mu$  . [5]  
Are the data consistent with  $\mu > 11$  h ?
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[Total maximum mark 30, to be scaled to 6]

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