

ENGI 4421 Probability & Statistics
Assignment #2
to be submitted by 2021 July 19 at 13:00
as a PDF file through Brightspace (D2L)

1. For the data set from Assignment #1 (at [3]
<http://www.engr.mun.ca/~ggeorge/4421/assigns/aa/CompletionTimes21.txt>)
generate a probability plot of the data to determine that the data are inconsistent with
having been drawn from a Normal distribution.

2. A random sample of 120 reconditioned thermostats is monitored for a year.
The times (in days after installation) when the fifth service call occurs are recorded.
The results are in the plain text file
<http://www.engr.mun.ca/~ggeorge/4421/assigns/aa/ServiceTime21.txt> .
Return a Minitab report that contains the following items.
 - a) Summary statistics for the times of the fifth service call, 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 clearly visible gridlines and a change of colour [4]
and/or hatching in the box. The scale on the vertical axis should display values
(and gridlines) every 50 days from 0 to 250 days. Also add a symbol on the boxplot
for the sample mean.
 - c) A histogram of the data, with a range from 0 to 260 days. [6]
The widths of the bins must be
 - 40 days for the first bin (starting at zero) and for the second-to-last bin,
 - 80 days for the last bin and
 - the width of the other five bins must be 20 days each.Add clearly visible horizontal grid lines, change the colour of the bars and
adjust the scale on the horizontal axis to display values at bin boundaries only.
 - 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 [4]
consistent with having been drawn from a *gamma* distribution.
 - f) A one-sided 95% confidence interval on the true mean failure time μ . [7]
Are the data consistent with $\mu > 100$ days?