Math 343 - Homework 2

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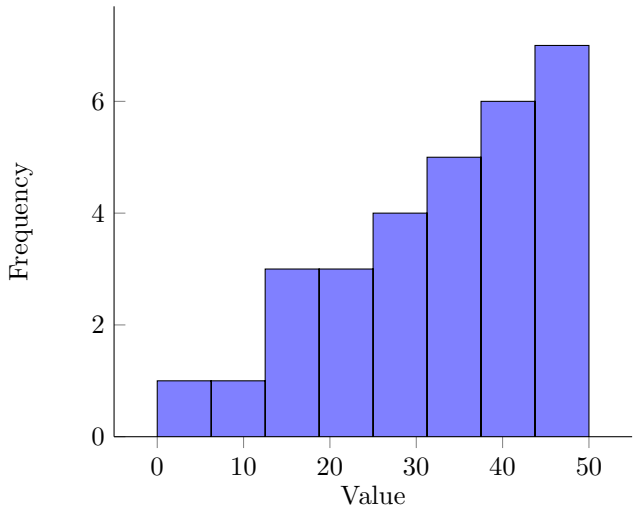
Question 1

Data with a rightward skew would produce a normal probability plot with a positive curvature. Below is an example of a histogram that would produce a positively curved normal probability plot.



Question 2

Question 3

a)

Test

Null hypothesis	$H_0: \sigma_1 / \sigma_2 = 1$
Alternative hypothesis	$H_1: \sigma_1 / \sigma_2 \neq 1$
Significance level	$\alpha = 0.05$

	Test			
Method	Statistic	DF1	DF2	P-Value
Bonett	0.00	1		0.963
Levene	0.00	1	18	1.000

Figure 1: The output of the test for two variances from Minitab.

Since the P-value $>$ α we can conclude the following. There is enough statistical evidence to support the hypothesis that both of the variances are equal.

b)

Test

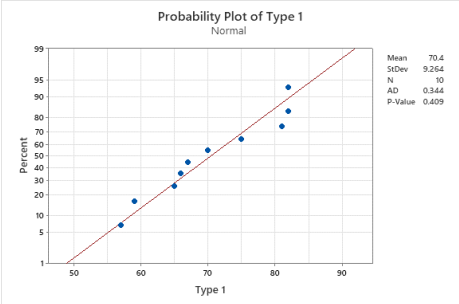
Null hypothesis	$H_0: \mu_1 - \mu_2 = 0$
Alternative hypothesis	$H_1: \mu_1 - \mu_2 \neq 0$

T-Value	DF	P-Value
0.05	18	0.962

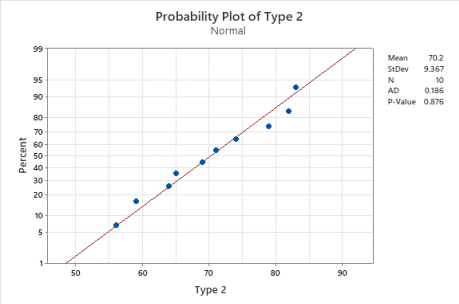
Figure 2: The output of the two sample t test from Minitab. Assuming equal variances.

Since the P-value $= 0.962 > \alpha$ we can conclude the following. There is enogh statistical evidence to support the hypothesis that the two means are equal.

c)



(a) Minitab output showing the probability plot of type 1.



(b) Minitab output showing the probability plot of type 2.

Type 1 Since the P-value $= 0.409 > \alpha$ we can conclude the following. There is enough statistical evidence to support the hypothesis that the data comes from a normal distribution.

Type 2 Similarly, since the P-value $= 0.876 > \alpha$ we can conclude the following. There is enough statistical evidence to support the hypothesis that the data comes from a normal distribution.

Question 4

Question 5

Question 6

Question 7

Question 8