

Comparing μ_1 and μ_2 (unequal variance t-test)

In a summer class of MATH201, students completed a survey where one of the questions asked them to give the population of Canada. Students received one of two different forms at random and the questions on each form are shown below:

Form A

The population of Australia is about 20 million. Do your best to estimate the population of Canada: _____ million

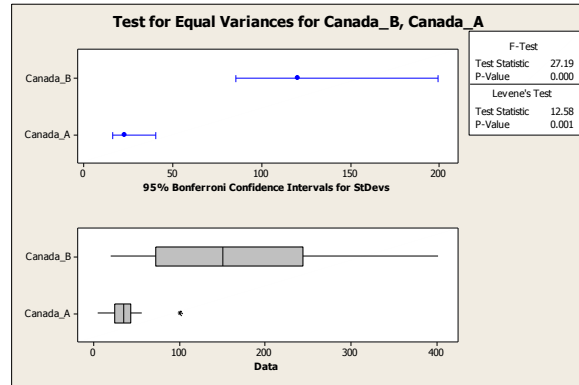
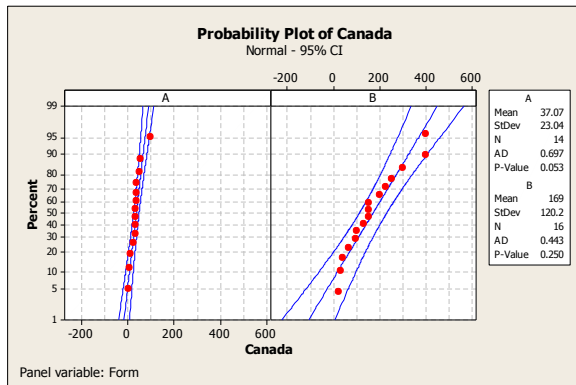
Form B

The population of the US is about 300 million. Do your best to estimate the population of Canada: _____ million

Below are some summary statistics for the Canada question by form. Use these data to see if there is enough evidence that the mean Canada response is biased toward the anchoring information given. Use $\alpha = .05$.

Descriptive Statistics: Canada

Variable	Form	N	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Canada	A	14	37.07	23.04	5.00	24.00	35.00	42.50	100.00
	B	16	169.0	120.2	20.0	71.8	150.0	243.8	400.0



Two-Sample T-Test and CI: Canada, Form

Two-sample T for Canada

Form	N	Mean	StDev	SE Mean
A	14	37.1	23.0	6.2
B	16	169	120	30

Difference = mu (A) - mu (B)

Estimate for difference: -131.929

95% upper bound for difference: -78.392

T-Test of difference = 0 (vs <): T-Value = -4.30 P-Value = 0.000 DF = 16

t-Test: Two-Sample Assuming Unequal Variances

	<i>CanadaA</i>	<i>CanadaB</i>
Mean	37.07143	169
Variance	530.9945	14438
Observations	14	16
Hypothesized Mean Difference	0	
df	16	
t Stat	-4.30234	
P(T<=t) one-tail	0.000274	
t Critical one-tail	1.745884	
P(T<=t) two-tail	0.000548	
t Critical two-tail	2.119905	