Math 10 – Homework 5

Name:

Lecturer:

**Instructions**

* Type your answers and paste images directly into this document.
* Or add additional space, print this out, and fill it in by hand.
* You will probably need to use a calculator for this homework.
* Print out and hand in homework in class on Tuesday.
* You may collaborate on the homework but you must write it up yourselves.

**Hypothesis Testing For Difference Between Two Means**

**Question 1 -** 15 points

Suppose we have two normally distributed populations 1 and 2, with the same unknown variance. You take two samples from them.

Sample 1 – sample mean = 18, sample SD = 2, size n = 10

Sample 2 – sample mean = 15, sample SD = 3, size n = 10

“Sample SD” is the estimator of the standard deviation, which is calculated using the data in the sample.

Perform a one-tailed hypothesis test at the 3% level of significance, on whether these two populations have the same population mean, or if population 1 has a larger mean.

**Question 2 –** 15 points

Suppose we have two populations.

Population 1 – population variance = 15

Population 2 – population variance = 20

Sample 1 – sample mean = 97, size n = 20

Sample 2 – sample mean = 90, size n = 30

Perform a two-tailed hypothesis test at the 10% level of significance, on the hypothesis that population 1 and population 2 has the same population mean.