Instructions:

1) Complete question 1 with the help of your tutor.
2) Submit **ONLY QUESTION 2** to your tutor for grading before the end of your tut period. Answer on a separate page. At the top, write down the **date, venue, student number**.
3) Solutions will be uploaded to iKamva on Friday.

Question 1 - Do not submit

1.1) An airline has surveyed a sample of air travelers to find out whether they would be interested in paying a higher fare in order to have access to more benefits during the flight. Of the 400 travelers surveyed, 80 said the additional benefits would be worth a slight extra cost. Construct and interpret a 95% confidence interval for the population proportion of air travelers who are in favour of the airline's idea.

1.2) A study was done to see whether male and female consumers differ in the amounts they spend on Valentine's day. A sample of 40 males (group 1) and 30 females (group 2) were surveyed, and the results were that the average expenditure for the males was R2339.95 with a standard deviation of R603.40, and the average expenditure for the females was R1183.35 with a standard deviation of R344.80.

a) What is the point estimate of the difference between the population mean expenditure for males and population mean expenditure for females?
b) At a 99% confidence, what is the standard of error?
c) Develop a 99% confidence interval for the difference between the two population means.
d) Calculate the length of the confidence interval.

Question 2 (10 marks) Submit your solutions with date, venue, student number.

2.1) Forbes reports that women trust recommendations from Instagram more than recommendations from any other social network platform. But does trust in Instagram differ by gender? The following sample data show the number of women and men who stated that they trust recommendations made on Instagram.

	Sample size	Trust recommendations made on Instagram
Women	150	117
Men	170	102

a) Construct a 95% confidence interval estimate of the difference between the proportion of women and men who trust recommendations made on Instagram. (4 marks)
b) Based on the confidence interval calculated in a) is there a statistically significant difference in the proportion of women and men who trust recommendations made on Instagram. (1 mark)

2.2) Respiratory Syncytial Virus (RSV) is a common childhood illness that affects the respiratory system. A study of RSV in the Western Cape gave information about different regions and the occurrence of RSV in each region. A random sample of 16 locations in region 1 and 15 locations in region 2 gave the following information about the cases of RSV near that location:

	n	Mean	Standard Deviation
Region 1	16	4.75	2.82
Region 2	15	3.93	2.43

a) Find a 95% confidence interval for the difference in the true mean occurrences of RSV in the two regions. (4 marks)
b) Does the confidence interval in a) indicate that there is a statistically significant difference in the true mean occurrences of RSV in region 1 and region 2? (1 mark)