# ENGEN102 – Statistics Workshop 2

Ford produces Cars with Fuel Filler Flaps that should require 10.5 Newtons of force to open. The manufacturers wish to test if their new model has fuel filler flaps that differ from 10.5 Newtons on average. A random sample of 25 cars, each with fuel filler flaps, had an average opening effort of 11 Newtons, with a standard deviation of 2.5 Newtons. They decide to perform a hypothesis test at the 5% level of significance.

1. What is the correct set of statements for this hypothesis test?
2. What is the value of the test statistic?
3. 1
4. 6
5. 0.5
6. 0.1667
7. -0.1667
8. What of the following is the most plausible value of the p-value?
9. 0.3242
10. 0.0825
11. 0.1009
12. 0.0037
13. 1.5612
14. The manufacturers decide to construct a 95% confidence interval to find a range of plausible values.

Which of the following intervals is correct?

1. (8.94, 13.06)
2. (9.04, 12.96)
3. (8.20, 13.80)
4. (11.00, 16.20)
5. (10.83, 11.17)
6. Which of the following statements is CORRECT?
7. If we repeat the sampling process 100 times and construct 95% confidence intervals for each sample, we would expect 95 out of 100 of the intervals to capture the population mean
8. There is a 95% probability the population mean lies in our confidence interval
9. We are 95% confident that the sample mean lies in our confidence interval
10. If we reject the null hypothesis at the 5% level, the hypothesized value will lie in a 95% confidence interval
11. The range of values for a 99% confidence interval will be smaller than the range of values for a 95% confidence interval