

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
DEPARTMENT OF MATHEMATICS AND STATISTICS
Term 141

STAT 319 Statistics for Engineers and Scientists

Quiz #2

Sunday November 23, 2014

Name: _____ ID# _____

- 1) A product designer is testing a new battery. He sampled 16 batteries and measured the time, in hours, by which the new battery outlasted the old one. The mean and the standard deviation of the data he collected is 7.3 hours and 8.5 hours respectively.
 - a) Construct a 95% confidence interval estimate of the mean lifetime advantage of the new battery.
 - b) What assumptions, if any, should the engineer make in order to use the interval constructed above?
 - c) Interpret this interval.
 - d) If the designer wishes his estimate to have half the error found in a) above, how many batteries should he test?