MATH 10B with Prof. Stankova
Section #209 ; time: 3:30-5pm
GSI: Ninh DO

Quiz 12

Student:
SID:
Tue 4/16/19

True/False - No explanation needed. (1pt for correct, 0pt - no answer, -1pt - incorrect)

1. Formulating the data likelihood and setting its derivative to 0 is always a good method to find the MLE. True/False
2. We cannot apply the MLE method to the distribution with more than one parameter. True/False

Problems - Need justification. No justification means **zero**!

1. (10pts) Over all years, the MATH 10B midterm mean is 100 and the std is 20. This year, the instructor takes a sample of 25 students whose midterm mean is 112. He believes that students of this year are smarter than the average over years. Take the significance level $\alpha = 0.05$.
   (a) Perform the hypothesis test of his belief and draw a conclusion, i.e. formulate hypotheses, state one-sided/two-sided test, calculate p-value, draw conclusion.
   Hint: use $\bar{\sigma} = \dfrac{\sigma}{\sqrt{n}}$
   (b) Calculate critical value and find the rejection region.