## Homework #5 – Due Oct 15
### STAT-UB.0103 – Statistics for Business Control and Regression Models

## Problem 1

Sincich, Ex. 4.88.
*(Note: if you have the 2nd edition of the textbook, then the problem number is 4.84)*

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## Problem 2

Sincich, Ex. 4.94.
*(2nd edition: Ex. 4.90)*

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## Problem 3

Sincich, Ex. 4.102. NHTSA crash safety tests.
*(2nd edition: Ex. 4.94)*

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## Problem 4

Sincich, Ex. 4.114. Industrial filling process.
*(2nd edition: Ex. 4.102)*

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## Problem 5

Sincich, Ex. 5.18. *(2nd edition: Ex. 4.166)*

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## Problem 6

Sincich, Ex. 5.24: Salary of a travel management professional. According to a National Business Travel Association (NBTA) 2010 survey, the average salary of a travel management professional is \$96,850. Assume that the standard deviaion of such salaries is \$30,000. Consider a random sample of 50 travel management professionals and let $\bar{X}$ represent the mean salary for the sample.

(a) What is $\mu_{\bar{X}}$?

(b) What is $\sigma_{\bar{X}}$?

(c) Describe the shape of the sampling distribution of $\bar{X}$.

(d) Find the $z$-score for the value $\bar{x} = 89,500$.

(e) Find $P(\bar{X} > 89,500)$.

*(This problem is from the 3rd eidtion of the textbook; it is missing from the 2nd edition)*

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## Problem 7

Sincich, Ex. 5.30. Surface roughness of pipe.
*(2nd edition: Ex. 4.176)*

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## Problem 8

A Pepsi machine in a Burger King store can be regulated so that it dispenses an average of $\mu$ ounces per cup. If the amount dispensed is normally distributed with standard deviation 0.2 ounces, what should be the setting for $\mu$ so that 8 ounce cups will overflow only 1% of the time?

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