**Economic Modeling – list 6**

1. Starting salaries at two universities are normally distributed with the following means and standard deviations. Samples from each school are taken…

|  |  |  |
| --- | --- | --- |
|   | University 1 | University 2 |
| Mean | 62,000 $/yr | 60,000 $/yr |
| Std. Dev. | 14,500 $/yr | 18,300 $/yr |
| sample size **n** | 50 | 60 |

a) What is the sampling distribution of  ?

b) what is the probability, that the difference of sample means is more than 1500$?

2. Only five percent of US families have a net worth in excess of 1 million dollars, and thus can be called millionaires. However, 30 percent of MSs 31,000 employees are millionaires (Harvard Business Review, July-August, 2000). If a random samples of 100 MS employees are selected at random, what proportion of the samples will have

(a) more than 36% millionaires,

(b) less than 29% millionaires, and

(c) between 25 and 35% millionaires?

3. Distribution of measurement errors is a normal distribution with . It was made 50 measurements. What is the probability, that the variance for this 50 measurements will be more than 0,1 ?

4. The president of a large university wishes to estimate the average age of the students

presently enrolled. From past studies, the standard deviation is known to be 2 years. A

sample of 50 students is selected, and the mean is found to be 23.2 years. Find the 95%

confidence interval of the population mean.

**5.** A survey of 30 adults found that the mean age of a person’s primary vehicle is 5.6 years.

Assuming the standard deviation of the population is 0.8 year, find the 99% confidence

interval of the population mean

6. Ten randomly selected automobiles were stopped, and the tread depth of the right front

tire was measured. The mean was 0.32 inch, and the standard deviation was 0.08 inch.

Find the 95% confidence interval of the mean depth. Assume that the variable is approximately normally distributed.

7. A sample of 500 nursing applications included 60 from men. Find the 90% confidence

interval of the true proportion of men who applied to the nursing program.