Module 2 Homework Assignment

1. 459 randomly selected light bulbs were tested in a laboratory, 291 lasted more than 500 hours. Find a point estimate of the true proportion of all light bulbs that last more than 500 hours.

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| Solution:  291/459= 0.63 | Instructor Comments: |

2. Find the critical value for *zα/2* that corresponds to a degree of confidence of 98%.

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| Solution:  2.326 | Instructor Comments: |

3. Find the margin of error for the 95% confidence interval used to estimate the population proportion with *n* = 163 and *x* = 96.

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| Solution:  p = x/n = 96/163 = 0.59 | Instructor Comments: |

4. Construct the confidence interval for question 3.

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| Solution: | Instructor Comments: |

5. Interpret the confidence interval found in question 4.

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| Solution: | Instructor Comments: |

6. What are the requirements for a Student’s t-distribution?

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| Solution:  Have to have a statistic for bell-shaped distribution. | Instructor Comments: |

7. Find the critical value for *tα/2* corresponding to n = 12 and 95% confidence level.

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| Solution: | Instructor Comments: |

8. Use the confidence level and sample data to find the margin of error *E*.

College students’ annual earnings:

99% confidence, *n* = 81,  = $3967, *s* = $874

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| Solution: | Instructor Comments: |

9. Construct the confidence interval for question 8 above.

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| Solution: | Instructor Comments: |

10. Interpret and describe the confidence obtained in question 9 in non-technical terms.

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| Solution: | Instructor Comments: |