# Lesson 10: Inference for One Mean - Sigma Known (Confidence Interval)

Preparation

## Solutions

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| Problem | Part | Solution |
|---|---|---|
| 01 | - | A confidence interval is an interval of numbers which estimates a population parameter |
| 02 | - | The margin of error is half the width of the confidence interval. It is the distance between the point estimator and one of the bounds of the interval. (If you have a large margin of error, then your confidence interval will also be large. If you have a small margin of error you will also have a small confidence interval.) |
| 03 | - | $\bar{x} \pm z\frac{\sigma}{\sqrt{n}}$ or $\bar{x} \pm m$ |
| 04 | - | - A simple random sample was drawn from the population.<br>- The distribution of the sample mean is normally distributed.<br>- Sigma is asssumed to be known. |
| 05 | A | z = 1.645 |
| 05 | B | z = 1.960 |
| 05 | C | z = 2.576 |
| 05 | D | The z-score also increases. |
| 06 | - | - A simple random sample was drawn from the population.<br>- The distribution of the sample mean is normally distributed.<br>- Sigma is asssumed to be known. |
| 07 | - | 541 |
| 08 | - | (532.13 , 549.87) |
| 09 | - | (534.728 , 547.272) |
| 10 | - | Notice that the margin of error gets smaller as the sample size grows larger. |
| 11 | - | (533.556 , 548.444) |
| 12 | - | The margin of error gets smaller as the level of confidence grows smaller. |
| 13 | - | 158 Students |