Lesson 7: Probability Calculations Involving a Mean Response

Homework

## Solutions

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| Problem | Part | Solution |
| 1 | - | There are many possible sample means that could be obtained from a population. For example, if you draw a simple random sample of size 100 you will get a sample mean for that sample. However, if you drew a different random sample of size 100, you would get a different sample mean. Many different samples of size 100 could be drawn from a population and each of these samples will have its own sample mean. All of these possible sample means make up the sampling distribution. |
| 2 | - | z=0.186 |
| 3 | - | 0.426 |
| 4 | - | Mean = 529 |
| 5 | - | Standard Deviation = 20.631 |
| 6 | - | Normal |
| 7 | - | z = 1.018 |
| 8 | - | 0.154 |
| 9 | - | Normal, with mean of 3.5 and standard deviation of 0.078 |
| 10 | - | 0.005 |
| 11 | - | 0.319 |
| 12 | - | 0.068 |
| 13 | - | z = -1.25 |
| 14 | - | 0.106 |
| 15 | - | z = -3.536 |
| 16 | - | 0.0002 |
| 17 | - | Probability shrinks as the z-score moves further away from the mean. This is happening because we are shading in the applet only to the left of the z-score since the problems ask for the probability of an event being ‘less than’. Therefore, as our z-score gets further away from the center, the smaller the probability will be on the left tail. |