

## Homework Solutions

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#### Exercise 19

- (a) The point estimate is  $\bar{x}$ , which is 13.5.
- (b) The sample size is 36, so there are 35 degrees of freedom. Using the  $t$ -table, we 2.042 for 30 degrees of freedom and 2.021 for 40 degrees of freedom. We could use either value or we could interpolate and get 2.031. I'll use 2.031. The 95% confidence interval is

$$\begin{aligned}\bar{x} \pm z \left( \frac{s}{\sqrt{n}} \right) &= 13.5 \pm 2.031 \left( \frac{1.2}{\sqrt{36}} \right) \\ &= 13.5 \pm 0.4062.\end{aligned}$$

- (c) If we followed this procedure many times, with many different samples, in the long run 95% of them would contain the true value of  $\mu$ .