

Homework Solutions

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Exercise 22

- (a) Enter all the data into the TI-83, using two separate lists. The point estimate is $\bar{x} = 16.8$.
- (b) We also find that $s = 4.25$. The value of t is 2.093 (95% confidence, 19 degrees of freedom), so the confidence interval is

$$\begin{aligned}\bar{x} \pm z \left(\frac{s}{\sqrt{n}} \right) &= 16.8 \pm 2.093 \left(\frac{4.25}{\sqrt{20}} \right) \\ &= 16.8 \pm 1.990.\end{aligned}$$

- (c) The point estimate is $\bar{x} = 24.1$ with $s = 6.206$.
- (d) The 95% confidence interval is

$$\begin{aligned}\bar{x} \pm z \left(\frac{s}{\sqrt{n}} \right) &= 24.1 \pm 2.093 \left(\frac{6.206}{\sqrt{20}} \right) \\ &= 24.1 \pm 2.904.\end{aligned}$$

- (e) 70% of 24.1 is 16.87, so the article appears to be very accurate.