STA-3145-ch.7

#14-P.383 (b)

90% Conf. Int. for the mean price μ see

$n = 20$, $\bar{x} = \$83.75$, $s = \$28.97$ (part a)

$\bar{x} - E \le \mu \le \bar{x} + E$ where $E = t_c \frac{s}{\sqrt{n}}$ $df = n-1$

$df = 19$

Caculation of E: $c = .90$,

for df 19, $t_c = 1.729$ from t-table

$\Rightarrow E = 1.729 * \frac{28.97}{\sqrt{20}} = 1.729 * \frac{28.97}{4.472} = 1.729 * 6.478$

$\Rightarrow E = 11.201$

Therefore

$\bar{x} - E \le \mu \le \bar{x} + E$

$\Rightarrow \$\begin{pmatrix} 83.75 \\ -11.201 \end{pmatrix} \le \mu \le 83.75 + 11.201$

$\Rightarrow \$72.549 \le \mu \le 94.951$

$\Rightarrow \$72.55 \le \mu \le 94.95$

We are 90% sure that the mean price μ is between \$72.55 and \$94.95