$(0, 11.5, 14, 19.5, 20)$, $\overline{x} = 14.4$ = C-.

p. 633: 11. (20 pts)

(a) (4 pts) The QQ plot shows nearly a straight line, so your assessment should be that the normality assumption is reasonable. The histogram shows a nice normal shape on the left, but the right tail is a bit large, so you assessment could go either way.

(b) (8 pts) The value of σ is not known, the population is normal, and the sample size is small. Therefore, we must use t. The test statistic is

$$t = \frac{\overline{x} - 3.1}{s/\sqrt{n}}.$$

Enter the data above and then use `1-Var Stats` to find the sample statistics. You get $\overline{x} = 4$ and $s = 2.132$. Now compute t:

$$t = \frac{4 - 3.1}{2.132/\sqrt{12}} = 1.462.$$

The p-value is

$$\texttt{tcdf(1.462,E99,11)} = 0.0858.$$

(c) (4 pts) Your decision should be to reject H_0 because $0.0858 < 0.10$.

(d) (4 pts) As in any hypothesis test, a mistake (error) could have been made. We do not mean a computational error or the error of choosing the wrong formula. We mean the error of making the wrong decision because the data were misleading. In this case, because we rejected H_0, we might have made a Type I error.