SOLUTIONS

1. (a) $\bar{x} = 16.\overline{5}$

$s = 14.231$

$m.o.e. = (t^*)(s.e.)$

$= 2.31\left(\frac{s}{\sqrt{n}}\right)$

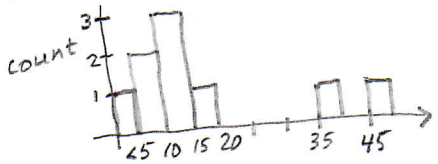
$= 2.31\left(\frac{14.231}{\sqrt{9}}\right)$

$= 10.958$

Interval = [5.6, 27.5] minutes

We are 95% confident that the true mean morning commute time for Oakcrest residents is between about 5.6 minutes and 27.5 minutes.

(b) Although the C.I. is based on an SRS as required, we know that t procedures for small n are valid only if the pop. is known to be normal. The pop. of commute times cannot be assumed to be normal; in fact, there is every reason to believe that the pop. may be strongly skew right, based on the sample histogram:



Thus the answer in (a) is not robust or reliable.

2. (a) $H_0: \mu = 4$

$H_a: \mu < 4$

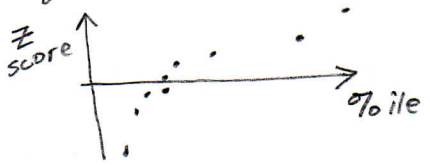
COMMENTARY (not part of what you would write)

There is no need to show the computation of $\bar{x}$ and s, which are built-in calculator features. Other work follows the "formula, plug-ins, and answer with units" pattern.

Also OK to say

$16.\overline{5}$ minutes $\pm$ 10.958 minutes with 95% confidence.

Instead of a histogram, you could show (and label) a NQP, saying that the bend to the right shows right skewness:



We do not state H_0 as $\mu \geq 4$, by convention, since any evidence to reject "$\mu = 4$" would constitute even stronger evidence against a value of μ greater than 4.