

Math 257 Fall 2005
(Selected) Solutions to Quiz #2

(a) Selected answers include the following.

It is possible that some residents of *Wascana Lodge* do not rely on public transportation, perhaps having access to a vehicle through a family member, and are therefore not so affected by the strike. Thus, the response of 1 may not have been given in error.

Conversely, it might be possible that the response from a particular elderly person was given in error. This could be the case if the question was not clearly received, or was not well-understood.

(b) The sample mean is

$$\bar{y} = \frac{8 + 8 + 9 + 1 + 7 + 9}{6} = 7.$$

(c) The sample variance is

$$s^2 = \frac{(8 - 7)^2 + (8 - 7)^2 + (9 - 7)^2 + (1 - 7)^2 + (7 - 7)^2 + (9 - 7)^2}{6 - 1} = \frac{46}{5}$$

so that the sample standard deviation is

$$s \approx 3.033.$$

(d) An approximate 95% CI for \bar{Y} , the true level of affectedness of residents of *Wascana Lodge*, is given by

$$\bar{y} \pm 2 \frac{s}{\sqrt{n}} \sqrt{1 - f} \quad \text{or} \quad 7 \pm 2 \frac{3.033}{\sqrt{6}} \sqrt{1 - 6/60} \quad \text{or} \quad (4.65, 9.35).$$

(e) Various answers are acceptable. It is important to explain the statistics clearly to the city councillors—the direct use of the phrase “confidence interval” does not accomplish this.