

MAT 2379 - Spring 2011
Assignment 5 : Solutions

6.12 (3 points)

a) $\bar{y} = 28.7, s = 4.5898, SE = \frac{4.5898}{\sqrt{6}} = 1.8738$

Confidence interval $28.7 \pm 2.571(1.8738)$

(23.8, 33.6)

b) *The* mean blood serum concentration of Gentamicin in healthy three-old female Suffolk sheep

c) *The* 95% refers to the percentage in a meta experiment of confidence intervals that would contain the true mean.

6.34 (2 points) a) The frequency distribution of Y appears skewed to the right since there are many larvae for $Y \leq 5$ and fewer for $Y > 5$.

(b) Even if the population is not normal, the Student t test is still approximately valid for large sample sizes. Here $n = 242$.

6.39 (2 points) $\hat{p} = \frac{28}{580} = 4.8276 \times 10^{-2}$; a 95% confidence interval is given by

$$\hat{p} \pm 1.96 \sqrt{\frac{\hat{p}(1 - \hat{p})}{n}}$$

$$4.8276 \times 10^{-2} \pm 1.96 \sqrt{\frac{4.8276 \times 10^{-2} (1 - 4.8276 \times 10^{-2})}{580}}$$

$$4.8276 \times 10^{-2} \pm 1.7445 \times 10^{-2}$$

(0.031, 0.066)

6.64 (2 points)

(a) $\bar{y} = 62.767, s = 1.01127, SE = \frac{1.01127}{\sqrt{6}} = 0.41285$

(b) A 90% confidence interval is

$$62.767 \pm 2.015(0.41285)$$

(61.94, 63.60)

Total= 9 points