HW6.B

Section 6.2

page 253-255, 5,6,7,8,22, 26.

5. sampling

6. Central Limit Theorem

7. True

8. False.

22. $\mu = 202, \sigma = 41, n = 110$.

Hence $\mu_{\bar{x}} = 202, \sigma_{\bar{x}} = \frac{41}{\sqrt{110}} = 3.909$.

a).$P(\bar{x} > 210) = P(z > \frac{210-202}{3.909}) = P(z > 2.05) = 0.0202$.

b). $P(190 \leq \bar{x} \leq 200) = P(-3.07 \leq z \leq -0.51) = 0.3050 - 0.0011 = 0.3039$.

c). No, it is not unusual. Because $P(\bar{x} \leq 198) = P(z < -1.02) = 0.1539$. That is, about 15 percent of the sample means are less than 198.

26. $\mu = 2631, \sigma = 500, n = 100$.

$\mu_{\bar{x}} = 2631, \sigma_{\bar{x}} = 500/\sqrt{100} = 50$.

a). $P(\bar{x} > 2700) = P(z > 1.38) = P(z < -1.38) = 0.0838$..

b). $P(2500 \leq x \leq 2600) = P(-2.62 \leq z \leq -0.62) = 0.2676 - 0.0044 = 0.2632$.

c). $p = 0.60, z = 0.25, \bar{x} = 2631 + 0.25 * 50 = 2643.5$.

d). Yes. $P(\bar{x} > 2800) = P(z > 3.38) = 0.0004$. That is, only about 0.04 percent of the samples means are greater than 2800.

e). No. $P(x < 2800) = P(z > 0.34) = 0.3669$. That is, about 37 percent of the individual rents are greater than 2800.