

HW #13 Ch.4 Sec 11(5,7,13) Ch.5 Sec 1(1,5,7) (11,23)

5) a) $5/\sqrt{60} = 0.65$

$P(Z < \frac{-1}{0.65}) = P(Z < -1.55) = 0.060$

b) $P_{70} = 0.52$

$P_{70} - 15$

$\frac{P_{70} - 15}{0.65} = 0.52$

$0.52(0.65) = 15.34$
 $+ 15$

c) $\frac{-1}{5/\sqrt{n}} = -2.33$ $\frac{5}{\sqrt{n}} = \frac{1}{2.33}$ $n = (2.33 \times 5)^2 = 136$

7) a) $50(4) = 200$
 $\sqrt{100} = 14.14$

$\frac{180 - 200}{14.14} = P(Z < -1.41)$
 $= 0.0793$

b) $\frac{P_{30} - 200}{14.14} = -0.52$

$-0.52(14.14) = 192.6$
 $+ 200$

18) a) $100(0.4)^2 = 16$ $\frac{55 - 50}{4} = 1.25$

$1 - 0.8944 = 0.1056$

b) $100(0.5)^2 = 25$ $\frac{55 - 60}{5} = -1.00$

$= 0.1587$

c) $\frac{115 - 110}{\sqrt{41}} = 0.78$

$1 - 0.7823 = 0.2177$

2) $z = \frac{0 - (-10)}{\sqrt{41}} = 1.56$

$1 - 0.9406 = 0.0594$

- 1) a) 1.96
b) 2.33
c) 2.58
d) 1.28

5) a) $\frac{0.88 + 1.02}{2} = 0.95$

b) $\frac{1.02 - 0.88}{2} = 0.07$

$114 - 1 = 113$

1.981

$\frac{0.07 \times 10.67}{1.981} = 0.38$

7) a) $8.1 \pm (1.96) \frac{0.6}{\sqrt{100}}$

$8.1 - 0.1176$ $8.1 + 0.1176$
7.98, 8.21

b) $8.1 \pm (2.576) \frac{0.6}{\sqrt{100}}$

$8.1 - 1.5456$ $8.1 + 1.5456$
7.94, 8.25

c) $0.08 \pm 2 \frac{0.5}{\sqrt{100}} = 1.6$

90% confidence

d) $n = 1.984 \left(\frac{0.5}{0.10} \right)^2 = n = 98.4 = 99$

e) $\frac{2.626 \times 0.5^2}{0.03} = 26.9 = 27$

11) a) $1217 - 1.96 \left(\frac{52}{\sqrt{72}} \right)$ $1217 + 1.96 \left(\frac{52}{\sqrt{72}} \right)$
1205.60, 1228.40

b) $1217 - 2.33 \left(\frac{52}{\sqrt{72}} \right)$ $1217 + 2.33 \left(\frac{52}{\sqrt{72}} \right)$
1203.45, 1230.55

$$c) \frac{52}{\sqrt{80}} = 1.8 \quad \frac{1.8 \sqrt{80}}{2.52} = 1.54 \quad 88\% \text{ confidence}$$

$$2) \frac{(1.96)^2 (52)^2}{64} = 162.31$$

$$23) \frac{0.213 + 0.241}{2} = 0.227$$

$$0.227 + 1.96 \frac{s}{\sqrt{n}} = 0.241$$

$$\frac{0.241 - 0.227}{1.96} = 0.0071$$

$$0.227 \pm (1.645)(0.0071)$$

$$0.2153 \text{ and } 0.2387$$