習題 21.

(1) $\hat{p} = \frac{105}{250} = 0.42$, $1-\alpha = 0.90$, $Z_{\frac{\alpha}{2}} = Z_{0.05} = 1.645$

∴ p之90%信賴區間為 $0.42 \pm Z_{0.05}\sqrt{\frac{0.42 \times 0.58}{250}}$

$= 0.42 \pm 1.645 \times 0.03$

$= 0.42 \pm 0.05$

即 (0.37 , 0.47)

(2) $e = 0.03$, $1-\alpha = 0.95$, $Z_{\frac{\alpha}{2}} = Z_{0.025} = 1.96$

a. $p = 0.3$

∴ $n = (\frac{1.96}{0.03})^2 (0.3)(0.7) = 896.37 \div 897 \Rightarrow n = 897$

b. $\hat{p} = \frac{105}{250} = 0.42$

∴ $n = (\frac{1.96}{0.03})^2 (0.42)(0.58) = 1,039.79 \fallingdotseq 1,040 \Rightarrow n = 1,040$.

c. $p = 0.5$

∴ $n = (\frac{1.96}{0.03})^2 (0.5)(0.5) = 1,067.11 \fallingdotseq 1,068 \Rightarrow n = 1,068$.