

(Solving for n)

$$|P_n - P| \leq \frac{L^n}{1-L} |P_1 - P_0|$$

$$P_0 = .3$$

Step 1

$$P_1 = f(.3)$$

$$f(.3) = \frac{.3^3}{20} - \frac{.3}{4} - .3 = -.37365$$

$$|-.37365 - .3| \approx .6737$$

$$L = .35$$

$$|P_n - P| \leq \frac{.35^n}{1-.35} (.6737)$$

$$|P_n - P| \leq \frac{.35^n}{.65} (.6737)$$

$$|P_n - P| \leq .35^n (1.036)$$

(Solve inequality)

$$\frac{.35^n (1.036)}{(1.036)} < \frac{.002}{(1.036)} \quad \text{Step 2}$$

$$.35^n < .002$$

$$\frac{n \ln(.35)}{\ln(.35)} < \frac{\ln(.002)}{\ln(.35)}$$

$$n < \frac{\ln(.002)}{\ln(.35)} \approx \underline{\underline{5.919}}$$

Therefore, $n \geq 6$