

Lab 4

$$3.2: \frac{P_{n+1} - P}{P_n - P} \approx \frac{P_{n+2} - P}{P_{n+1} - P}$$

$$\Rightarrow (P_{n+1} - P)(P_{n+1} - P) \approx (P_n - P)(P_{n+2} - P)$$

$$\Rightarrow P_{n+1}^2 - 2P(P_{n+1}) + P^2 \approx P_n(P_{n+2}) - P_n(P) - P(P_{n+2}) + P^2$$

$$\Rightarrow P_{n+1}^2 - 2P(P_{n+1}) \approx P_n(P_{n+2}) - P_n(P) - P(P_{n+2})$$

$$- 2P(P_{n+1}) + P_n(P) + P(P_{n+2}) \approx -P_{n+1}^2 + P_n(P_{n+2})$$

$$P(-2P_{n+1} + P_n + P_{n+2}) \approx (-P_{n+1}^2 + P_n P_{n+2})$$

$$P \approx P_n - \frac{(P_{n+1} - P_n)^2}{P_{n+2} - 2P_{n+1} + P_n} \quad \checkmark$$