

Maple Tutorial Practice Question

An economist is interested in the variation of the price of a single product. It is observed that a high price for the product in the market attracts more suppliers. However, increasing the quantity of the product supplied tends to drive the price down. Over time, there is an interaction between price and supply. The economist has proposed the following model, where P_n represents the price of the product at year n , and Q_n represents the quantity.

$$\begin{aligned}P_{n+1} &= P_n - 0.1(Q_n - 500) \\Q_{n+1} &= Q_n + 0.2(P_n - 100)\end{aligned}$$

Test the following initial conditions and predict the long term behaviour.

	Price	Quantity
Case A	100	500
Case B	200	500
Case C	100	600
Case D	100	400