1. We have $\Delta P = -0.2P_n$.
   a. Write the updating equation.

   b. If $P_0 = 50$, write the explicit solution for $P_n$.

   c. Describe the long term behavior of $P_n$ as $n \to \infty$.

2. Suppose $Q_{n+1} = -0.7Q_n + 153$.
   a. Compute the equilibrium value $Q^*$.

   b. If $Q_0 = 100$ determine the solution equation for $Q_n$. Recall that an affine discrete model $P_{n+1} = aP_n + b$ has an explicit solution $P_n = Ca^n + P^*$, where $P^*$ is the equilibrium value, and $C$ can be determined from the initial condition.

   c. Determine the long term behavior of $Q_n$ as $n \to \infty$. 