Practice worksheet | Sequences and series

Recurrence models

Name: _____ Date: _____

6 questions | 13 marks

1. $u_0 = 4, u_{n+1} = 3u_n + 2$. Find u_1, u_2, u_3. [2 marks]

2. A population starts at 200, keeps 90% yearly, then receives 50 newcomers. Find its rule and P_2. [2 marks]

3. Find the equilibrium and limiting value for $x_{n+1} = 0.75x_n + 8, x_0 = 0$. [2 marks]

4. For $u_{n+1} = 2u_n - 6, u_0 = 7$, find the equilibrium and long-term behaviour. [2 marks]

5. A machine adds 10 units then loses 20% of the new stock. Write a recurrence. [2 marks]

6. Find an explicit rule for $u_{n+1} = 0.5u_n + 3, u_0 = 10$. [3 marks]