This homework covers material difference equations.

1. Consider the system of two difference equations

   \[ n(t+1) = \frac{r n(t)}{1+n(t-1)^5} + 0.001 \]

   For each of the following values of \( r \), use numerical simulation in python to determine the asymptotic behavior of the solution if \( n(0) = n(1) = 1 \).

   (a) \( r = 1.1 \)
   (b) \( r = 1.3 \)
   (c) \( r = 1.55 \)
   (d) \( r = 2.0 \)

2. Tung, Section 7.7 # 2

3. Tung, Section 7.7 # 3