

Problem 14: Mosquito Disease

$$a) m_1 = \frac{R_0}{a^2 b c D_H \cdot D_m} = 0.0367,$$

$$m_2 = 1.4017, \quad m_3 = 0.1250$$

Both of these have < 1 so an outbreak will not persist.

b) Attached

- c) • For $m = 0.0367$: There is a miniscule amount of infection while the mosquitos die out
- For $m = 0.1250$: The mosquitos manage to have a higher rate of infection but still die out:
 - For $m = 1.4017$: The humans have no chance and are decimated by the mighty mosquito overlords.