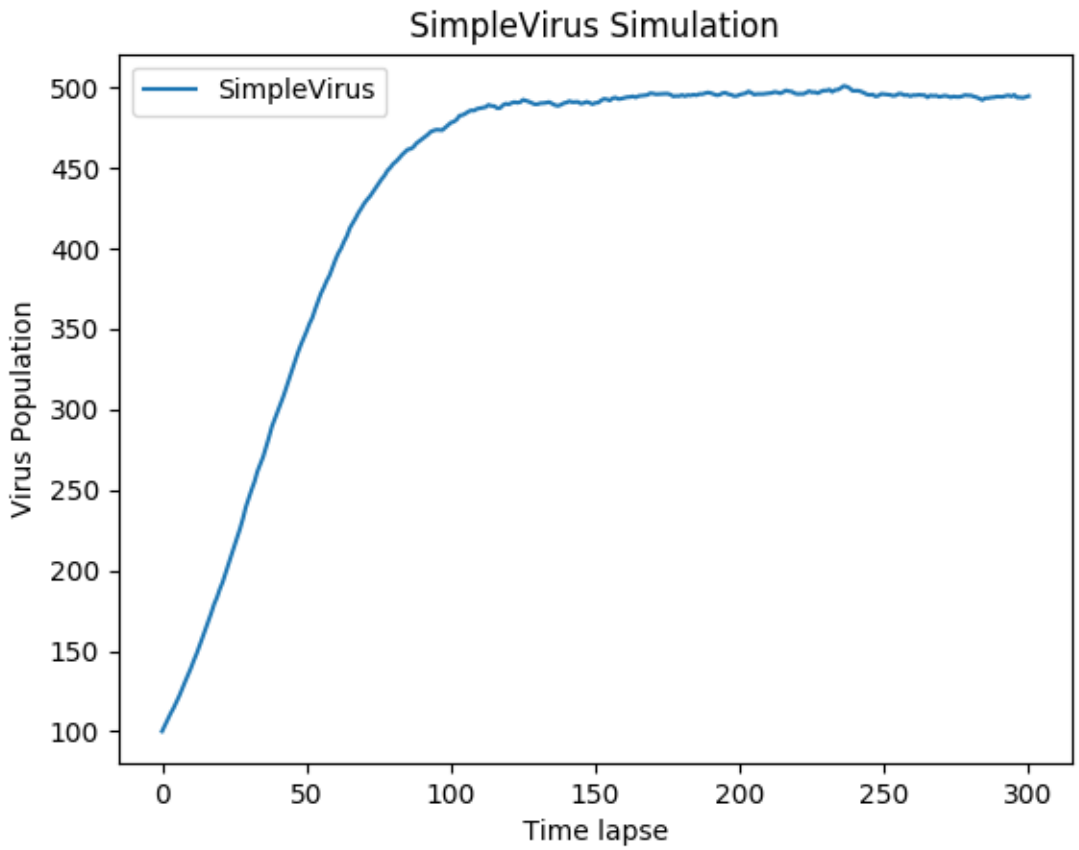
Problem 2:

This is a graph I got after running simulation for 100 trials



Q: about how long does it take before the population stops growing?

Population stops growing roughly after 150 time steps.

Problem 3:

Part i)
1- ½ * ½ * ½ = 1/8
2- ½ * ½ * ½ = 1/8
3- Sequences * P = 3! / 2! * 1/8 = 3/8
4- 2 heads, 1 tail: Sequences * P = 3! / 2! * 1/8 = 3/8

Part ii)
P = Cases numbers are same / Total cases

5 dice, 6 cases each = 6^5
For same numbers, specified 6 cases for 6 sides

P = 6 / 6^5 = 1 / 6^4 = 0.000771604382716049