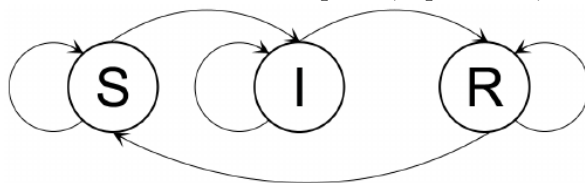**Submit your work on Catcourses by April 21st at 11:59pm**

1. The Susceptible-Infectious-Recovered (SIR) model is a well-known compartmental model that can be used to model disease spread, epidemics, etc. It can also be modeled as a Markov

   chain:

   (a) Associate values (your choice BUT justify it) to each transition from the graph above and write the associate Transition matrix $\mathcal{P}$.

   (b) Suppose we use the SIR model to simulate the *Math 150 fever*: this infectious disease makes any infected person model everything all the time (write equations everywhere even on their body, simulate everything even on their smart phone, question every single aspect of their lives and discussing it with any encountered person). The above Markov chains the represents the transition to all states in a day time. Suppose that the current Math 150 class is distributed as follows: 60% susceptible, 10% infected, and 30% recovered. With your chosen values, what would happen after a semester (75 class days) ? You can change the values chosen in the previous question, as long as you explain your reasoning.

2. Submit your work on Catcourses under the assignment `Homework 8 (individual)` **as a .ipynb**.