This time you can freely choose between two works, 2a and 2b. You only need to do the other, not both! This is work 2a:

In this work we study the growth of bacteria in a physicists fridge. It is observed that the size of a bacteria population follows this formula:

(1) $$population\ at\ the\ end\ of\ the\ day = (growth\ rate) \cdot population \cdot (1 - population)$$,

where *population* is the number of bacteria at the start of a day (the units are in millions, so the population is a real number), and growth rate describes the rate at which the bacteria reproduce. If the population is larger than 1, then the population dies away due to overcrowding. Write a program that calculates the bacteria populations after a given number of days using Eq. (1). The initial population, time, and growth rate should be read from the user in the main function. Computing the populations must be done in a separate function. The function prototype could look like this:

```
double bacpop(int time, double initpop, double growthrate);
```

The program should print both the number of bacteria after the given amount of time and tell if the population has reached an equilibrium (Hint: the population is in equilibrium if the population remains the same after one day, ie. in C: when bacpop(1, pop, grate) == pop). All printing should be done from the main function. Run your program with an initial population of 0.1, time 20 days, and with growth rates 2.0 and 4.0, and include the results in your report.