Math 01235 Project 1 Name _____
Spring 2018 Rowan ID _____

Directions: Read all the questions carefully and answer them completely. No credit will be given for undocumented responses. **Show all your work to get full credit.**

Use Matlab to complete the following questions.

1. A population P (unit: million) obeys the logistic model. It satisfies the equation

$$\frac{dP}{dt} = 0.000167716P(188.121 - P).$$

Assume when $t = 0$ (unit: year), $P_0 = 5.308$. Let $h = 0.05$.

(a) Use Euler's method to compute $P(300)$.

(b) Use Improved Euler's method to compute $P(300)$.

(c) Use Runge-Kutta method to compute $P(300)$.

(d) Plot all three solutions (domain: $[0, 300]$) in a same figure.