In Section 2.3, Strogatz derives the logistic equation as a model of population growth by adding the idea of 'carrying capacity' to a basic exponential model, leading the system

$$\dot{N} = rN\left(1 - \frac{N}{K}\right)$$

Another idea one could introduce to make this model more realistic is the idea of some constant rate of hunting (or harvesting), which depletes the population by some fixed amount every unit of time. This would give the system

$$\dot{N} = rN\left(1 - \frac{N}{K}\right) - h$$

Some questions:

1. Exercise 2.3.1 asks you to analytically solve the logistic equation, using two methods. Can you analytically solve this logistic equation with harvesting?

2. Instead of analytically solving this system, use the geometric method described by Strogatz to describe how trajectories of this system behave over time. What happens for different values of h?

3. In this model, we have a constant harvesting term. What other kinds of harvesting terms might be reasonable? How would they affect trajectories of the system?