WeBWorK

Go to http://webwork.ucr.edu/webwork2/MATH_046_001_15W/ and do:

- all three problems in “APPLICATIONS PART 2”
- all three problems in “POPULATION PROBLEMS”

To hand in

Suppose the population of fish at time $t$ is $P(t)$ (in millions of fish). Suppose this population obey the logistic equation but with fishing at a rate of 5 million fish per year, so that

$$\frac{dP}{dt} = 6P - P^2 - 5$$

1) What are the equilibrium solutions of this equation: that is, solutions where $\frac{dP}{dt} = 0$?

2) Draw a direction field for this equation and graph three solutions that aren’t equilibrium solutions.

3) If $P(0) = 3$, what does $P(t)$ approach in the far future?

4) For which initial values of the population will the fish go extinct?

*If you need more help with direction fields, look at Chapter 18 of the book!*