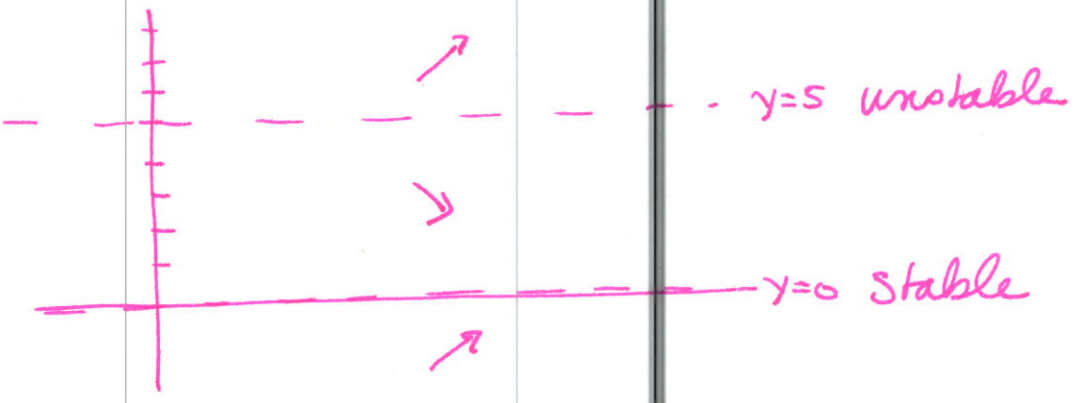
MTH 291, Quiz #1, Spring 2018 Name KEY

Instructions: Show all work. Use exact answers unless otherwise asked to round.

1. Graph the direction field for the differential equation $y' = -y(5 - y)$ by hand and comment on the stability of each equilibrium.



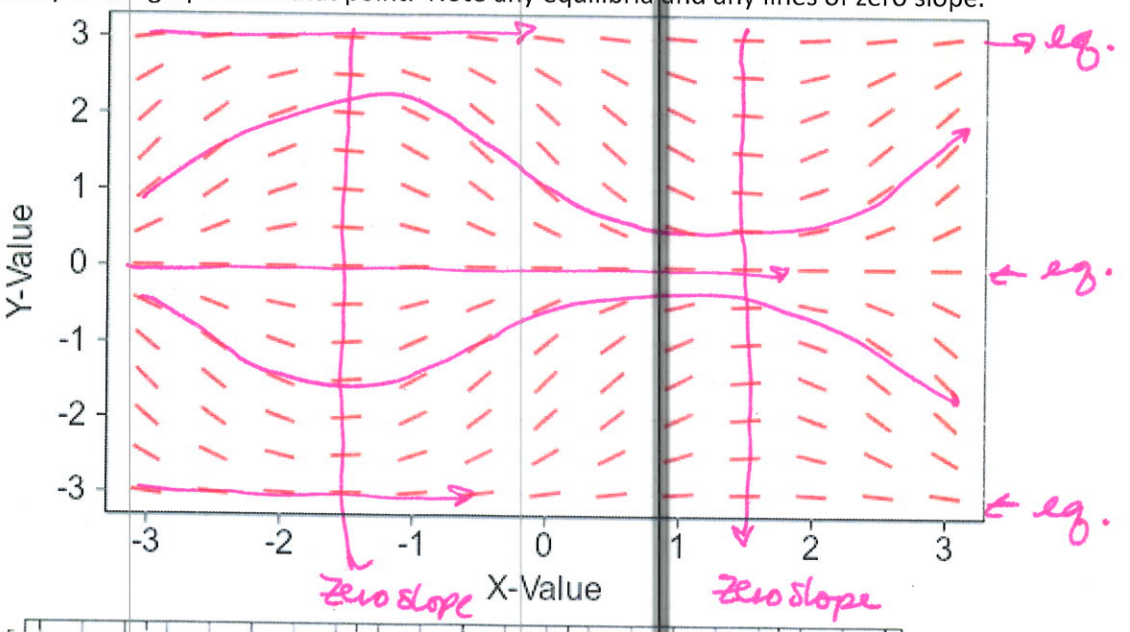
2. Find a solution to the differential equation $y' = -y^2$ (i.e. what function squared is equal to the negative of its own derivative?).

$y = \frac{1}{x}$

$y' = -\frac{1}{x^2} = -\left(\frac{1}{x}\right)^2$

3. For each slope field shown below, select two different sets of initial conditions and plot the trajectory of the graph from that point. Note any equilibria and any lines of zero slope.

a.



b.