**2**. [13 points]
   **a**. [7 points]  Consider the following differential equations:

    A. $y' = y(x-2)^2$     B. $y' = y(x-2)$     C. $y' = -y(1-y)$     D. $y' = -y^2(1-y)$

Each of the following slope fields belongs to one of the differential equations listed above. Indicate which differential equation on the given line. Find the equation of the equilibrium solutions and their stability. If a slope field has no equilibrium solutions, write none.
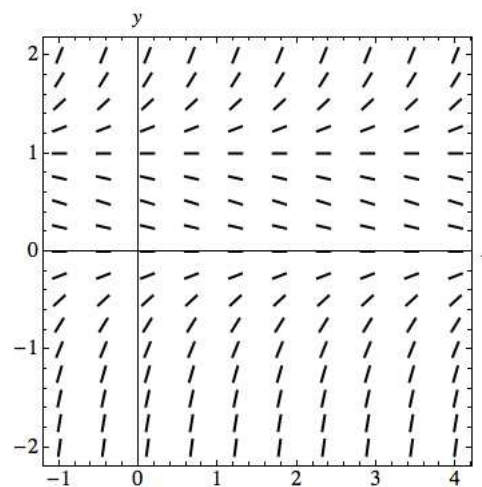
Differential equation: _____

Equilibrium solutions and stability:
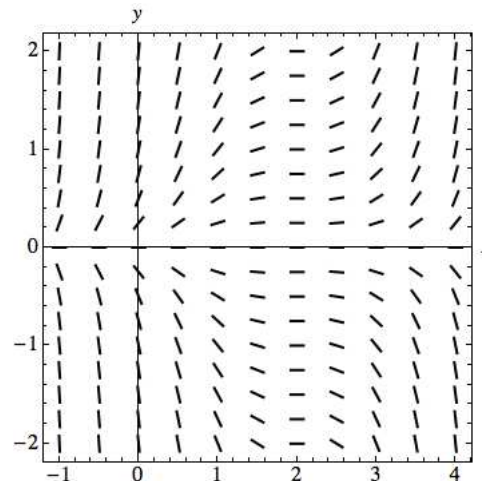


Differential equation: _____

Equilibrium solutions and stability:

**b.** [4 points]  A bank account earns a $p$ percent annual interest compounded continuously. Continuous payments are made out of the account at a rate of $q$ thousands of dollars per year. Let $B(t)$ be the amount of money (**in thousands of dollars**) in the account $t$ years after the account was opened. Write the differential equation satisfied by $B(t)$.

**c.** [2 points]  The slope field shown below corresponds to the differential equation satisfied by $B(t)$ (for certain values of $p$ and $q$). Sketch on the slope field below the solution to the differential equation that corresponds to an account opened with an initial deposit of $3,000$ dollars.