

5. [13 points] Consider the following differential equations

A.  $y' = 2x$

B.  $y' = 5y - 1$

C.  $yy' = 2$

D.  $y' = \frac{y}{x}$

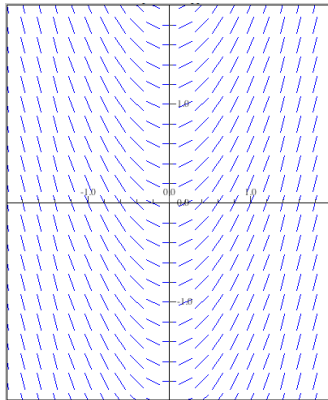
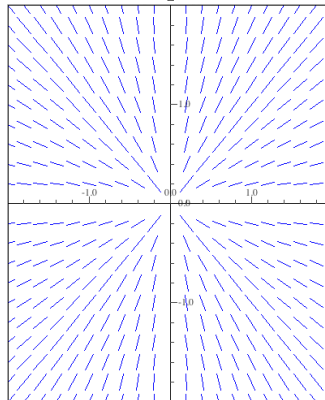
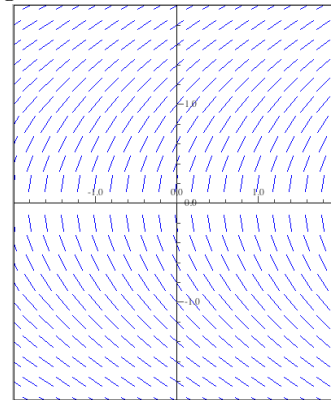
a. [6 points] Each of the following functions is a solution to one of the differential equations listed above. Indicate which differential equation with the corresponding letter (A,B,C or D) on the given line.

1.  $y = \frac{1}{5} + e^{5x}$           B    

3.  $y = 2\sqrt{x}$           C    

2.  $y = x^2 + 1$           A    

b. [3 points] Each of the following slope fields belongs to one of the differential equations listed above. Indicate which differential equation on the given line.

    A        D        C    

c. [4 points] Find the equilibrium solutions of the differential equations given above (if any). Write the equation of the equilibrium solutions in the space provided below. If the equation does not have equilibrium solutions, write none.

A.     None          B.      $y = \frac{1}{5}$           C.     None          D.      $y = 0$