4. [8 points] Four slope fields are given below.

(I)

(II)

(III)

(IV)
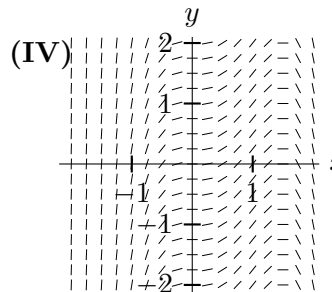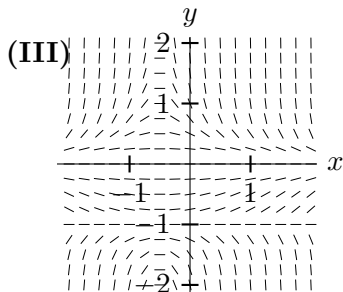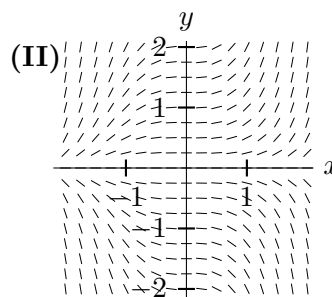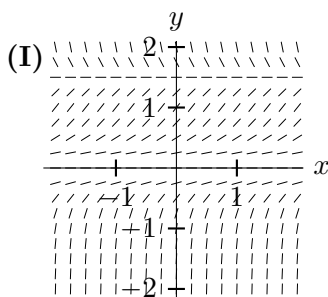
a. [4 points] Suppose a and b are constants. Which one of the slope fields above could be the slope field for the differential equation $\dfrac{dy}{dx} = ax^2(x - b)$? (Circle one.)

(I)   **(II)**

(III)   **(IV)**

Based on this slope field, which of the following **must** be true about a?

$a > 0$ $a = 0$ $a < 0$ NONE OF THESE

Based on this slope field, which of the following **must** be true about b?

$b > 0$ $b = 0$ $b < 0$ NONE OF THESE

b. [4 points] Find all equilibrium solutions of slope field **(I)** (on the upper left side) and determine whether they are stable. If there are no equilibrium solutions, write "none".

Stable equilibrium solutions: | **Other equilibrium solutions:**