

## MA 114 Worksheet # 28: Graphical Methods

1. Match the differential equation with its slope field. Give reasons for your answer.

$$y' = 2 - y \quad y' = x(2 - y) \quad y' = x + y - 1 \quad y' = \sin(x) \sin(y)$$

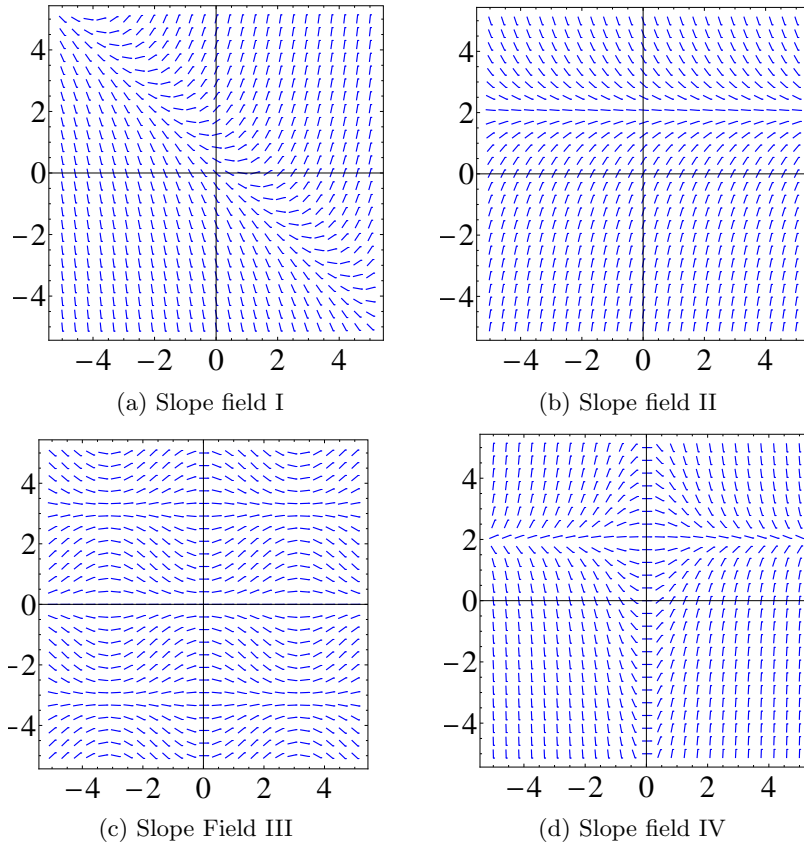


Figure 1: Slope fields for Problem 1

2. Use slope field labeled IV to sketch the graphs of the solutions that satisfy the given initial conditions

$$y(0) = -1, \quad y(0) = 0, \quad y(0) = 1.$$

3. Sketch the slope field of the differential equation. Then use it to sketch a solution curve that passes through the given point

(a)  $y' = y - 2x, (1, 0)$

(b)  $y' = xy - x^2, (0, 1)$

4. Show that the isoclines of  $y' = t$  are vertical lines. Sketch the slope field for  $-2 \leq t \leq 2, -2 \leq y \leq 2$  and plot the integral curves passing through  $(0, 1)$  and  $(0, -1)$ .