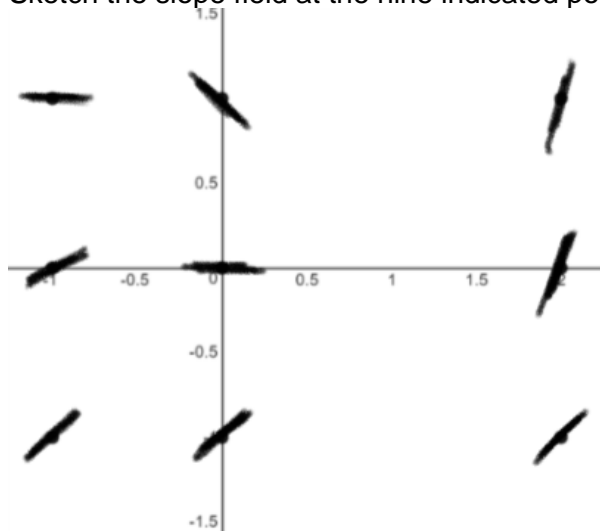
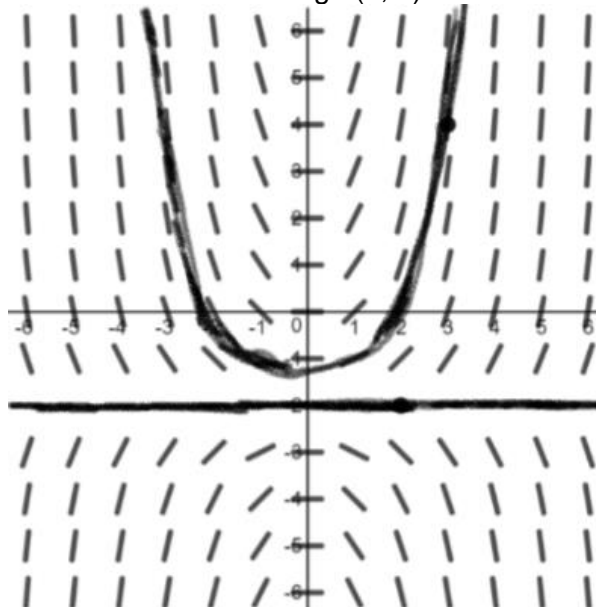


Sketch the slope field at the nine indicated points.

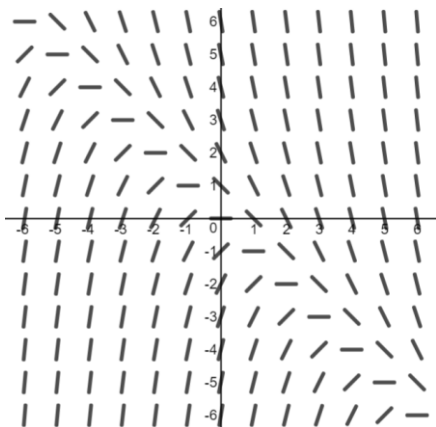


$$dy/dx = (x + y)/(x - 1)$$

Sketch the solution curve through the (2, -2) and the solution curve through (3, 4).



Select the differential equation that matches the given slope field.



$$dy/dx = x + y$$

$$dy/dx = x - y$$

$$\Rightarrow \underline{dy/dx = -x - y}$$

$$dy/dx = y - x$$

Find the solution $y = f(x)$ that passes through (0, 1). $dy/dx = xy + x$.

$$dy/dx = x(y + 1)$$

$$\frac{1}{y + 1} dy = x dx$$

$$\int \frac{1}{y + 1} dy = \int x dx$$

$$\ln|y + 1| = \frac{1}{2}x^2 + c$$

$$\ln|1 + 1| = \frac{1}{2}(0)^2 + c$$

$$\ln 2 = c$$

$$\ln|y + 1| = \frac{1}{2}x^2 + \ln 2$$

$$|y + 1| = e^{(1/2)x^2 + \ln 2} = e^{\ln 2} e^{(1/2)x^2}$$

$$y + 1 = \pm 2e^{(1/2)x^2}$$

$$\text{consider the point } (0, 1) \quad (1) + 1 = 2e^{(1/2)(0)^2} = 2$$

$$\therefore y + 1 = 2e^{(1/2)x^2}$$

$$y = -1 + 2e^{(1/2)x^2}$$