P. 374 # 51-54, 57, 59

**51.** $\frac{dy}{dx} = \sin 2x$

For $x = 0, \frac{dy}{dx} = 0$. Matches (b).

**52.** $\frac{dy}{dx} = \frac{1}{2}\cos x$

For $x = 0, \frac{dy}{dx} = \frac{1}{2}$. Matches (c).

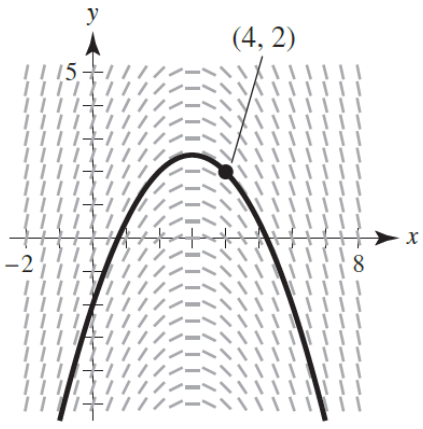
**53.** $\frac{dy}{dx} = e^{-2x}$

As $x \to \infty, \frac{dy}{dx} \to 0$. Matches (d).

**54.** $\frac{dy}{dx} = \frac{1}{x}$

For $x = 0, \frac{dy}{dx}$ is undefined (vertical tangent). Matches (a).

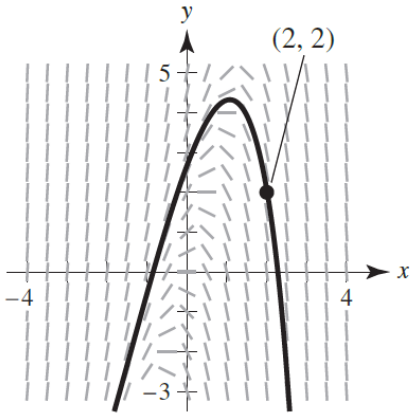
**57.** (a), (b)




(c) As $x \to \infty, y \to -\infty$

As $x \to -\infty, y \to -\infty$

**59.** (a), (b)




(c) As $x \to \infty, y \to -\infty$

As $x \to -\infty, y \to -\infty$