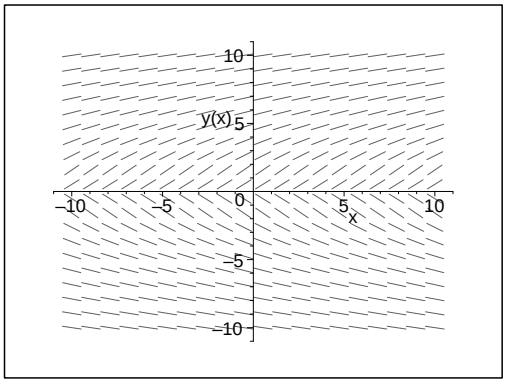
1. (6 points) Which of the following differential equations has the slope field given in the figure? (Circle the letter of each correct answer.)

a. $\frac{dy}{dx} = \frac{2x}{1+x^2}$ **b.** $\frac{dy}{dx} = e^{-y^2}$ **c.** $\frac{dy}{dx} = \frac{2x^2}{1+x^4}$

d. $\frac{dy}{dx} = \frac{2y}{1+y^2}$ **e.** $\frac{dy}{dx} = e^{-x^2}$ **f.** $\frac{dy}{dx} = \frac{2y^2}{1+y^4}$



2. (8 points) Circle "True" or "False" for each of the following statements. No explanation is necessary. (Remember that "True" means the statement is always true.)

(a) The function $y(t) = 0$ is an equilibrium solution of the differential equation $dy/dt = y + t$.

True. False.

There is no constant y_0 such that $dy/dt - y + t = 0$ for $y = y_0$ and all t, so there is no equilibrium solution of the equation.

(b) If $P(t)$ is a solution of the logistic differential equation, $dP/dt = .5P(200 - P)$, then so is the function $2P(t)$.

True. False.

The constant function $P(t) = 200$ is a solution of the equation, but $2P(t)$ is not.