10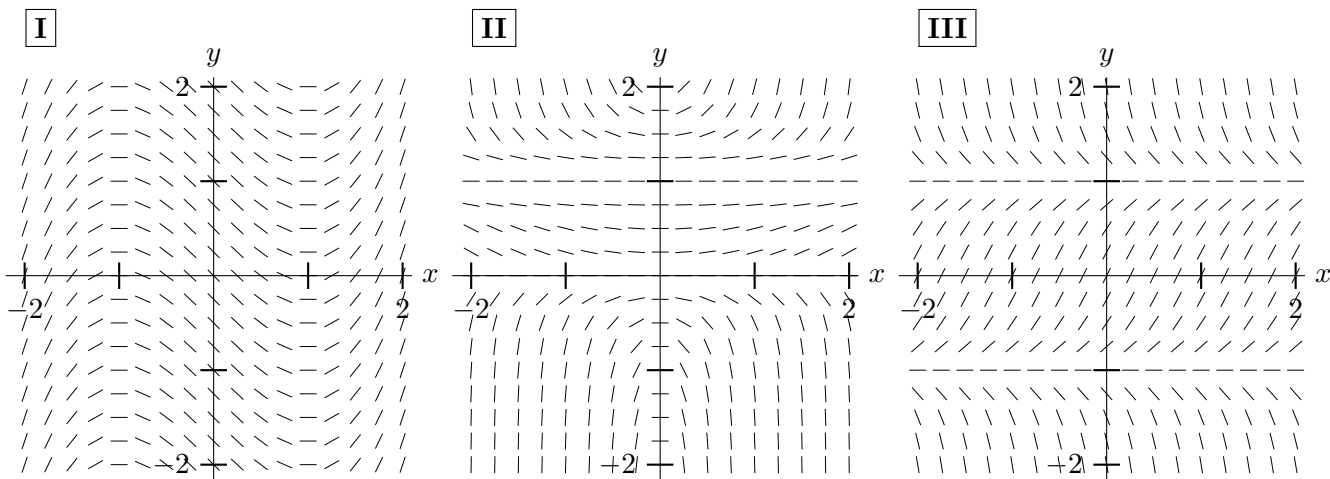. [12 points] Consider the three differential equations whose slope fields are shown in **I**, **II**, and **III** below.

For each of the properties below, circle **all** of the slope fields for which the corresponding differential equation appears to satisfy that property. Circle "NONE OF THESE" if none of the differential equations satisfy the property. Explanation is not required. No credit will be awarded for ambiguous answers.

a. [2 points] $y = 1$ is a stable equilibrium solution of the differential equation.

I   II   III   NONE OF THESE

b. [2 points] $\dfrac{dy}{dx} < 0$ for $0 < x < 1$.

I   II   III   NONE OF THESE

c. [2 points]   If we use Euler's method starting at the point $(1, 1.5)$ and use $\Delta x = 0.1$, the resulting estimate of $y(2)$ would be an underestimate of the actual value of $y(2)$.

I   II   III   NONE OF THESE

d. [2 points]   The solution passing through the point $(0.5, 0.25)$ has $\lim\limits_{x \to \infty} y = 1$.

I   II   III   NONE OF THESE

e. [2 points]   The differential equation can be written in the form $\dfrac{dy}{dx} = f(y)$ for some function f.

I   II   III   NONE OF THESE

f. [2 points]   The approximate values arising from Euler's method starting at the point $(-1, -1)$ and using $\Delta x = 0.25$ lie on a straight line.

I   II   III   NONE OF THESE