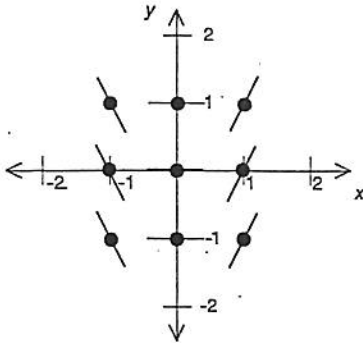**Example 1**

Tip Since this differential equation expresses $\dfrac{dy}{dx}$ in terms of x alone, line segments at points having the same x-coordinate (in the same column) will all have the same slope.
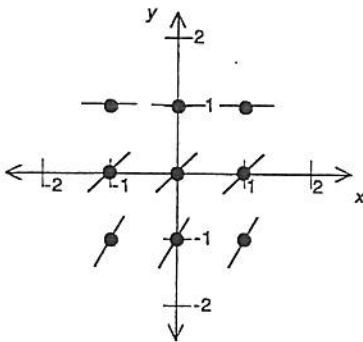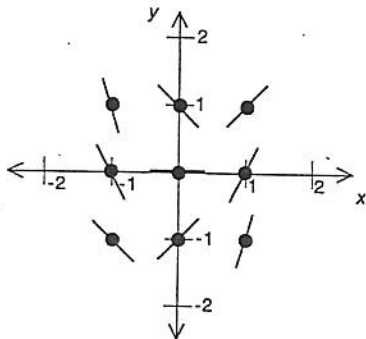
Answer

Example 2

Tip Since this differential equation expresses $\dfrac{dy}{dx}$ in terms of y alone, line segments at points having the same y-coordinate (in the same row) will all have the same slope.
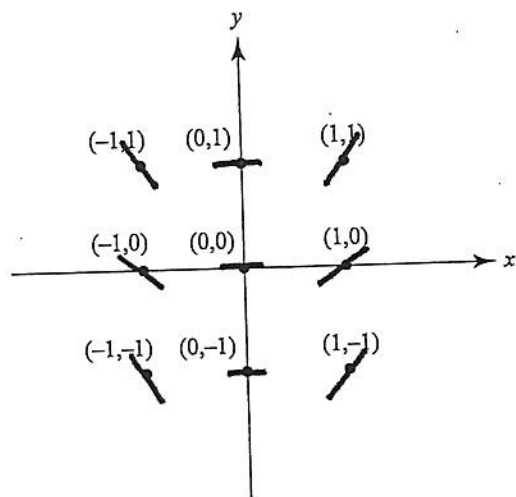
Answer

Tip Since this differential equation expresses $\dfrac{dy}{dx}$ in terms of both x and y, you'll have to pay attention to both coordinates in determining the slope of each line segment.

5. Given the differential equation $\dfrac{dy}{dx} = 2x\left(y^2 + 1\right)$

(a) Sketch the slope field for this differential equation at the points shown in the figure.

y

(−1,1)   (0,1)   (1,1)

(−1,0)   (0,0)   (1,0)   → x

(−1,−1) (0,−1) (1,−1)

(b) Let f be the function that satisfies the differential equation and whose graph passes through (0,1). Express f as a function of x.

SKIP