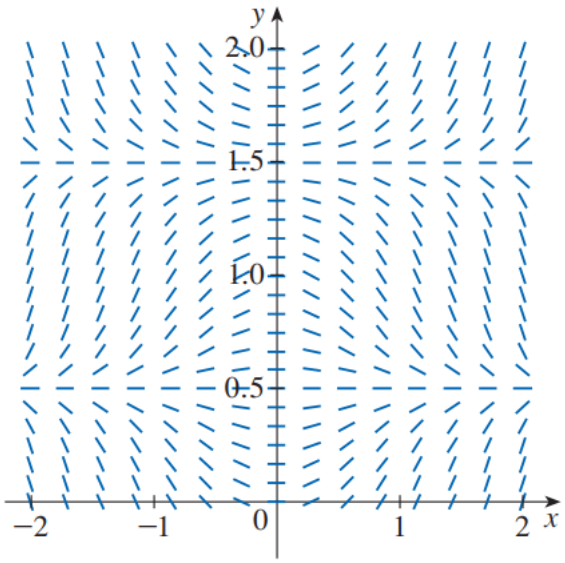
Worksheet 7
10/12/2023

1. Sketch the direction field of the differential equation $y' = y - x$ at the points $(a, b) \in \left\{0, \pm\frac{1}{2}, \pm 1\right\}$.

2. Choose the differential equation whose direction field is given below.

   A. $y' = y\sin(\pi x)$
   B. $y' = y\cos(\pi x)$
   C. $y' = x\sin(\pi y)$
   D. $y' = x\cos(\pi y)$



3. Use Euler's method with step size 0.1 to estimate $y(0.5)$, where $y(x)$ is the solution of the initial-value problem $y' = y + xy$, $y(0) = 1$.