Let R be the first-quadrant region bounded by the graphs of $y = \sqrt{x}$ and $y = \frac{x}{2}$

1. R is the base of a solid whose cross sections perpendicular to the x-axis are isosceles right triangles with a leg in R. Find the volume of this solid.

2. R is the base of a second solid whose cross sections perpendicular to the y-axis are semicircles. Find the volume of this solid.

[NOTE: real assessment will have only 1 of these question-types. Be ready for either dx or dy problems involving: squares, semicircles, rectangles with fixed height, isosceles triangles.]
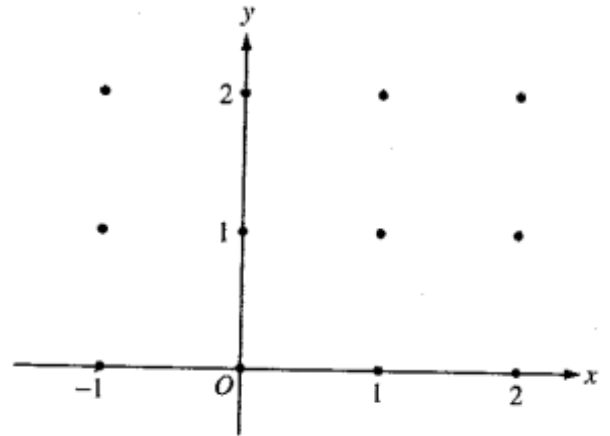
D-DE4

Consider the differential equation $\frac{dy}{dx} = \frac{x-1}{y^2}$

   3. On the axes provided, sketch a slope field at the points indicated.

   4. While only some points are graphed, the slope field drawn in the previous problem is defined for many others. Describe all points in the xy-plane that have negative slope.

D-DE5

   5. Choose the differential equation that could be represented by the given slope field.

A) $\frac{dy}{dx} = \frac{x}{y}$ B) $\frac{dy}{dx} = xy$

C) $\frac{dy}{dx} = x - y$ D) $\frac{dy}{dx} = x + y$