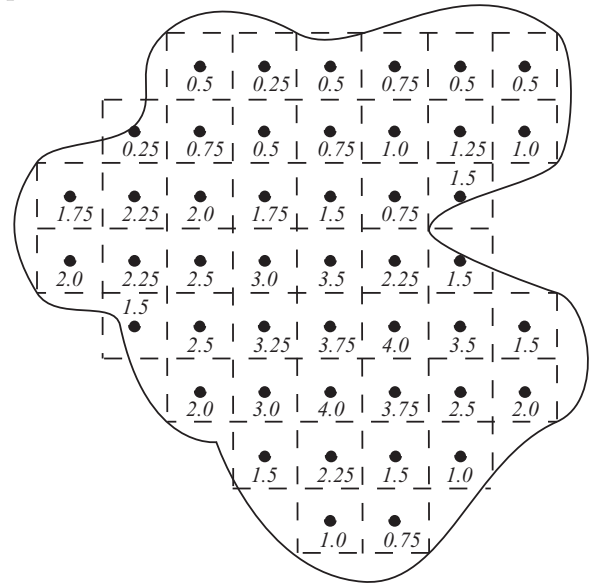


1. (Volume of a Pond) The water surface of a small pond is approximately divided up into $0.5 \text{ ft} \times 0.5 \text{ ft}$ squares. The depth of pond at the point at the center of each square of the grid is measured and indicated in the figure below.

1a. Estimate the area of the water surface of the pond in sq. ft.



1b. Estimate the volume of water in the pond in cubic. ft. You may want to use excel spreadsheet to enter your data to help with accuracy.

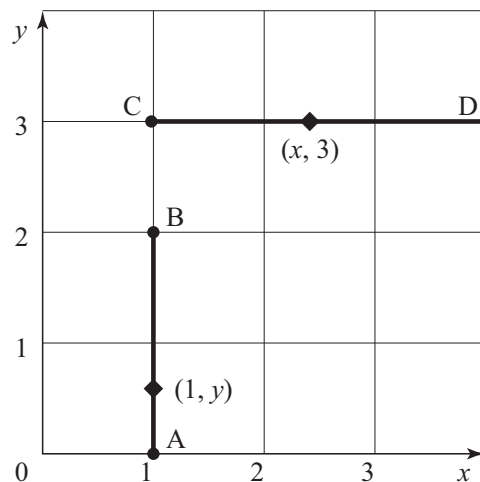
2. Horizontal and vertical line segments on the xy -plane are particularly easy to describe as a set of points. We give some examples below.

The points along the vertical line segment AB have x -coordinate equal 1. The y -coordinate of the points begins at $y = 0$ and ends at $y = 2$. Therefore the set of points along AB is given by:

$$\{(1, y) : 0 \leq y \leq 2\}$$

The points along the horizontal line segment CD have y -coordinate equal 3. The x -coordinate of the points begins at $x = 1$ and ends at $x = 4$. Therefore the set of points along CD is given by:

$$\{(x, 3) : 1 \leq x \leq 4\}$$

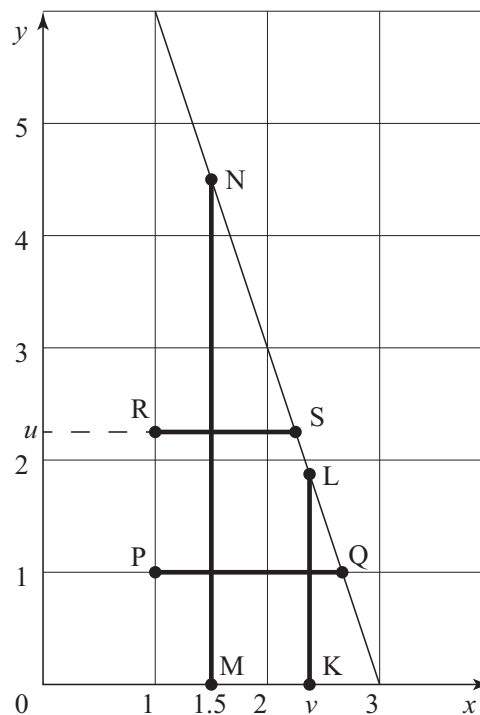


Using the ideas above, write down the set of points that describe the given horizontal and vertical lines graphed below. **Hint:** You may want to find the equation of the slanted line first.

2a. The set of points on the line segment PQ .

2b. The set of points on the line segment MN .

2c. The set of points on the line segment RS . Here u is some fixed constant.



2d. The set of points on the line segment KL . Here v is some fixed constant.