



# MATH NOTES

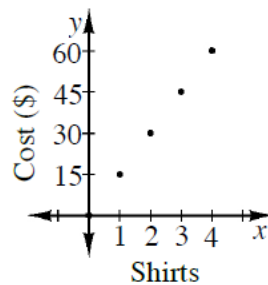
## METHODS AND MEANINGS

### Continuous and Discrete Graphs

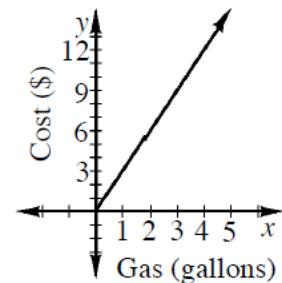
When the points on a graph are connected, and it *makes sense* to connect them, the graph is said to be **continuous**. If the graph is not continuous, and is just a sequence of separate points, the graph is called **discrete**. For example, the graph on the left represents the cost of buying  $x$  shirts and is discrete because you can only buy whole numbers of shirts.

The graph on the right represents the cost of buying  $x$  gallons of gasoline and is continuous because you can buy any (non-negative) amount of gasoline.

Discrete Graph



Continuous Graph



- Jill is studying a strange bacterium. When she first looks at the bacteria, there are 1000 cells in her sample. The next day, there are 2000 cells. Intrigued, she comes back the next day to find that there are 4000 cells! [Help](#)
  - Should the graph of this situation be linear or curved?
  - Create a table and graph for this situation. The inputs are the days that have passed after she first began to study the sample, and the outputs are the numbers of cells of bacteria.
- Solve each equation for the indicated variable. [Help](#)
  - $t = an + b$  (for  $b$ )
  - $\frac{y}{3} - a = b$  (for  $y$ )
  - $m = \frac{y}{x}$  (for  $y$ )
  - $m = \frac{y}{x}$  (for  $x$ )
- Write the equation of each line described below. [Help](#)
  - A line with slope  $-2$  and  $y$ -intercept  $7$ .
  - A line with slope  $-\frac{3}{2}$  and  $x$ -intercept  $(4, 0)$
- Solve each system. [Help](#)
  - $$\begin{aligned} y + 3x &= -10 \\ 5x - y &= 2 \end{aligned}$$
  - $$\begin{aligned} 6x &= 7 - 2y \\ 4x + y &= 4 \end{aligned}$$