Changing Representations

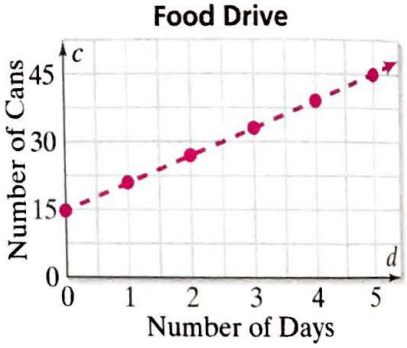
You can use words, graphs, tables, or equations to show algebraic relationships.

EXAMPLE

Food Drive A class collected cans for a food drive. The teacher brought in 15 cans to start the collection. Beginning the next day, the class brought in 6 cans every day. The table shows the number of cans collected for the first week. Make a graph and write an equation describing the number of cans c collected in d days. Interpret the rate of change and initial value.

Number of Days, d	0	1	2	3	4	5
Number of Cans, c	15	21	27	33	39	45

Graph: Make a graph of the data with the number of days on the horizontal axis and the number of cans on the vertical axis.



Function Rule: The function is linear because the graph is a line. The y-intercept is 15, and the slope is $\frac{21-15}{1-0} = 6$. So the linear function rule is $c = 6d + 15$.

The rate of change, or slope of the line, is 6 cans per day. The initial value is the y-intercept of the line, or 15 cans.

Exercises

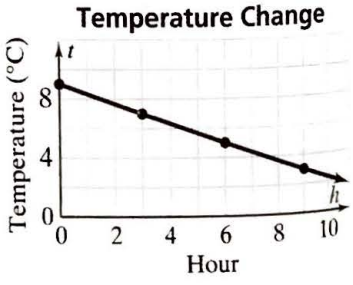
In Exercises 1–3, one representation of a function is given. Translate each function by representing it as a table, as a graph, and as a function rule. Interpret the rate of change and initial value.

1.

Day	Cards in Collection
0	10
1	18
2	26
3	34

2. $d = 40t$ miles where d represents distance traveled and t represents time in hours

3.



4. **Reasoning** When might it be more useful to use a graph rather than a function rule? A function rule rather than a graph?