

1-5 Study Guide and Intervention

Words, Equations, Tables, and Graphs

Represent Functions Functions are relations in which each member of the domain is paired with *exactly* one member in the range. The **function rule** describes the operation(s) which must be performed on a domain value to get the corresponding range value.

Function tables organize and display the input values (the x -coordinates), the function rule, and the output values (the y -coordinates).

Example **TICKETS** June is ordering tickets for a show. Tickets cost \$22 each and there is a \$6 surcharge per order. Make a function table for 4 different input values and write an algebraic expression for the rule. Then state the domain and range of the function.

Step 1 Create a function table showing the input, rule, and output. Enter 4 different input values.

Input (x)	Rule: $22x + 6$	Output (y)
1	$22(1) + 6$	28
2	$22(2) + 6$	50
3	$22(3) + 6$	72
4	$22(4) + 6$	94

Step 2 The phrase “Tickets cost \$22 each and there is a \$6 surcharge per order” translates to $22x + 6$. Use the rule to complete the table.

Step 3 The domain is {1, 2, 3, 4}. The range is {28, 50, 72, 94}.

Exercises

For each ticket cost and surcharge given below, make a function table for 4 different input values and write an algebraic expression for the rule. Then state the domain and range of the function.

1. Ticket cost: \$8; surcharge: \$1.50

Input (x)	Rule:	Output (y)

2. Ticket cost: \$12; surcharge: \$3

Input (x)	Rule:	Output (y)

1-5 Study Guide and Intervention *(continued)*

Words, Equations, Tables, and Graphs

Multiple Representations Functions can be described as words, equations, tables and graphs.

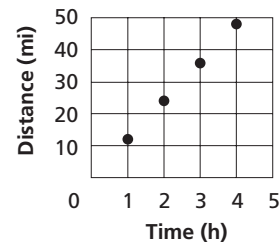
Words The distance biked is equal to 12 miles per hour times the number of hours.

Equation $d = 12t$

Table

Time (h)	Distance (mi)
1	12
2	24
3	36
4	48

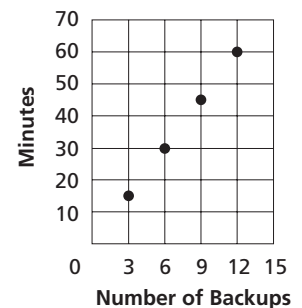
Graph



Example **FILE PROTECTION** **Tori's computer backs up the file she is working on every 5 minutes. Make a function table to find the time for 3, 6, 9, and 12 backups. Then graph the ordered pairs.**

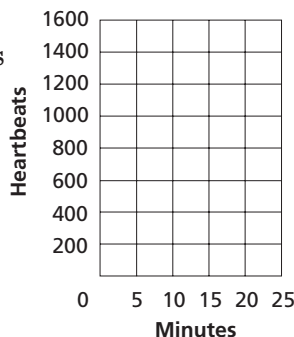
Let m represent the number of minutes and b represent the number of backups. So, the rule is $m = 5b$.

Input (x)	$5b$	Output (y)
3	$5(3)$	15
6	$5(6)$	30
9	$5(9)$	45
12	$5(12)$	60



Exercise

- Viktor's heart beats 72 times a minute.
 - ALGEBRAIC** Write an equation to find the number of times Viktor's heart beats for any number of minutes.
 - TABULAR** Make a function table to find the number of times Viktor's heart beats in 5, 10, 15, and 20 minutes.
 - GRAPHICAL** Graph the ordered pairs for the function.



Input (x)		Output (y)