Function Tables Notes

Find the Output for a Function Table

Work Zone

What do I do to the input to get the output?

A **function** is a relation that assigns exactly one output value to one input value. The number of wing beats (output) depends on the number of seconds (input). The **function rule** describes the relationship between each input and output. You can organize the input-output values and the function rule in a **function table**.

In a function, the input value is also known as the **independent variable**, since it can be any number you choose. The value of the output depends upon the input value, so the output value is known as the **dependent variable**.

Examples

1. **The output is 7 more than the input. Complete a function table for this relation.**

The function rule is $x + 7$. Add 7 to each input.

Input (x)	$x + 7$	Output
10	10+7	17
12	12+7	19
14	14+7	21

→

Input (x)	$x + 7$	Output
10	10 + 7	17
12	12 + 7	19
14	14 + 7	21

2. **The output is 5 times the input. Complete a function table for this relation.**

The function rule is $5x$. Multiply each input by 5.

Input (x)	$5x$	Output
8	5 · 8	40
10	5 · 10	50
12	5 · 12	60

Got It? Do these problems to find out.

a.

Input (x)	$x - 4$	Output
4	4-4	0
7	7-4	3
10	10-4	6

b.

Input (x)	$3x$	Output
0	0·3	0
2	2·3	6
5	5·3	15

Find the Input for a Function Table

The input and output of a function table can be represented as a set of ordered pairs, or a *relation*. The input represents the *x*-values and the output represents the *y*-values.

Example

Tutor

3. **Find the input for the function table.**

Use the *work backward* strategy to determine the input. If the output is found by multiplying by 3, then the input is found by dividing by 3.

Input (x)	$3x$	Output
2	3(2)	6
5	3(5)	15
7	3(7)	21

The input values are 6 ÷ 3 or 2, 15 ÷ 3 or 5, and 21 ÷ 3 or 7.

$3x = 6$

$3x = 15$

$3x = 21$

Got It? Do these problems to find out.

c.

Input (x)	$2x - 1$	Output
1	2(1)-1	1
2	2(2)-1	3
3	2(3)-1	5

d.

Input (x)	$3x + 2$	Output
5	3(5)+2	17
6	3(6)+2	20
9	3(9)+2	29

Example

Tutor

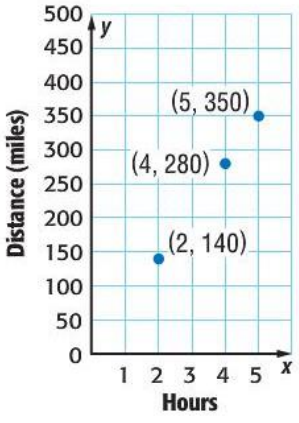
4. **The Gomez family is traveling at a rate of 70 miles per hour. The function rule that represents this situation is $70x$, where x is the number of hours. Make a table to find how many hours they have driven at 140 miles, 280 miles, and 350 miles. Then graph the function.**

Input (x)	$70x$	Output (y)
2	70(2)	140 → (2, 140)
4	70(4)	280 → (4, 280)
5	70(5)	350 → (5, 350)

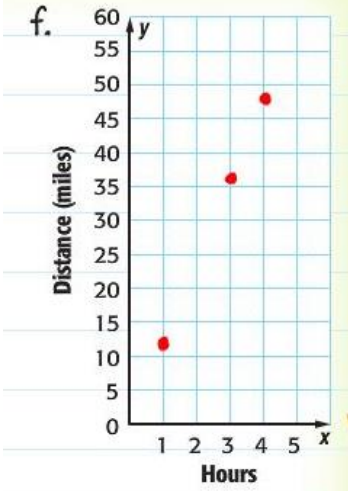
Use the *work backward* strategy. Divide each output by 70.

The missing input values are 140 ÷ 70 or 2, 280 ÷ 70 or 4, and 350 ÷ 70 or 5.

The input and output values are the ordered pairs (x, y). Plot each ordered pair on the graph.



f.



Got It? Do this problem to find out.

e. Briana bikes 12 miles per hour. The function rule that represents this situation is $12x$, where is x is the number of hours. Make a table to find how many hours she has biked when she has gone 12, 36, and 48 miles. Then graph the function.

Input (x)	$12x$	Output (y)
1	12(1)	12
3	12(3)	36
4	12(4)	48

(1, 12)
(3, 36)
(4, 48)

Guided Practice

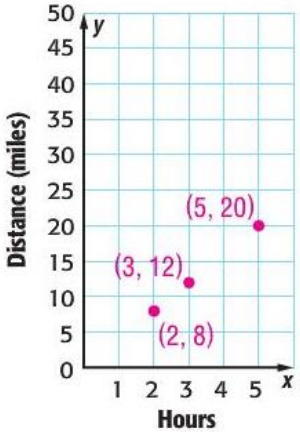
Check

1. Isaiah is buying jelly beans. In bulk, they cost \$3 per pound, and a candy dish costs \$2. The function rule, $3x + 2$ where x is the number of pounds, can be used to find the total cost of x pounds of jelly beans and 1 dish. Make a table that shows the total cost of buying 2, 3, or 4 pounds of jelly beans and 1 dish. (Examples 1 and 2)

Pounds (x)	$3x + 2$	Cost (\$) (y)
2	3(2) + 2	8
3	3(3) + 2	11
4	3(4) + 2	14

2. Jasper hikes 4 miles per hour. The function rule that represents this situation is $4x$, where x is the number of hours. Make a table to find how many hours he has hiked when he has gone 8, 12, and 20 miles. Then graph the function. (Examples 3 and 4)

Hours (x)	$4x$	Miles (y)
2	4(2)	8
3	4(3)	12
5	4(5)	20



Rate Yourself!

Are you ready to move on? Shade the section that applies.