What You'll Learn

Scan the lesson. List two headings you would use to make an outline of the lesson.

- **Find the Output for a Function Table**

  (dependant) + range

- **Find the Input for a Function Table**

  (independant) + domain

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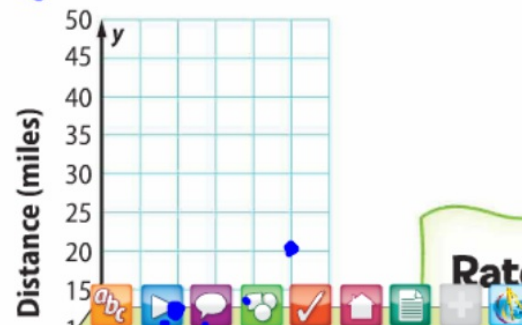
Pounds (x)	$3x + 2$	Cost ($) ($y$)
2	$3(2)+2$	8
3	$3(3)+2$	11
4	$3(4)+2$	14

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)

$(2,8)$

$(3,12)$

$(5,20)$

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



Distance (miles)

50
45
40
35
30
25
20
15

Rate Yourself!

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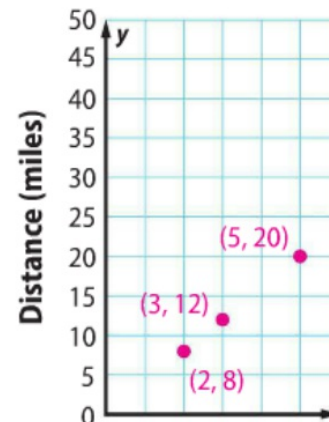
Rate Yourself!

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

3. ⓔ **Building on the Essential Question** How can a function table help you find input or output?

Sample answer: When data is organized, I can use the function rule and the input to find the output or work backward using the output and the function rule to find the input.

CCSS **Use Math Tools** Complete each function table. (Examples 1–3)

1.

Input (x)	$3x + 5$	Output
0	3(0) + 5	5
3	3(3) + 5	14
9	3(9) + 5	32

2.

Input (x)	$x - 4$	Output
4	4 − 4	0
8	8 − 4	4
11	11 − 4	7

3.

Input (x)	$x + 2$	Output
0	0 + 2	2
1	1 + 2	3
6	6 + 2	8

4.

| Input (x)	$2x + 4$	Output
7	2(7) + 4	18
9	2(9) + 4	22
15	2(15) + 4	34

5 Whitney has a total of 30 cupcakes for her guests. The function rule, $30 \div x$ where x is the number of guests, can be used to find the number of cupcakes per guest. Make a table of values that shows the number of cupcakes each guest will get if there are 6, 10, or 15 guests. Then graph the function. (Examples 1 and 2)

Number of Guests (x)	30 ÷ x	Cupcakes per Guest (y)
6	30 ÷ 6	5
10	30 ÷ 10	3
15	30 ÷ 15	2
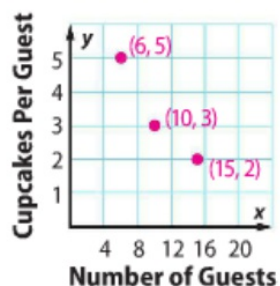
6. Bella rollerblades 8 miles in one hour. The function rule that represents this situation is $8x$, where x is the number of hours. Make a table to find how many hours she has skated when she has traveled 16, 24, and 32 miles. Then graph the function. (Examples 3 and 4)

Hours (x)	8x	Miles (y)
2	8(2)	16
3	8(3)	24
4	8(4)	32
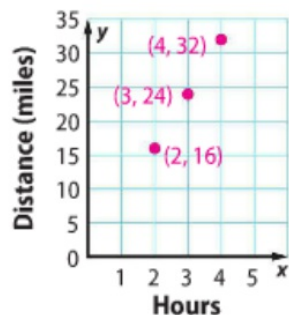
7. Refer to Exercise 6. How many miles would Bella travel if she skated for 7 hours? **56 miles**
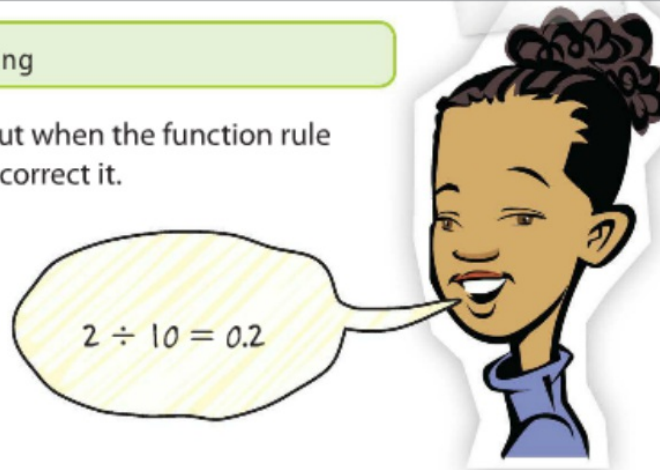
H.O.T. Problems Higher Order Thinking

8. **CCSS Find the Error** Daniella is finding the output when the function rule is $10 \div x$ and the input is 2. Find her mistake and correct it.

She divided the input by 10 instead of

dividing 10 by the input. $10 \div 2 = 5$

$2 \div 10 = 0.2$

9. **CCSS Persevere with Problems** Around 223 million Americans keep containers filled with coins in their home. Suppose each of the 223 million people started putting their coins back into circulation at a rate of $10 per year. Create a function table that shows the amount of money that would be recirculated in 1, 2, and 3 years.

Years (x)	223 million $\times$ \$10 $\times$ x
1	\$2,230,000,000
2	\$4,460,000,000
3	\$6,690,000,000

10. **CCSS Reason Inductively** Explain how to find the input given a function rule and output.

To find the input, work backward by performing the rule using the

reverse of the order of operations.

11. CCSS **Justify Conclusions** Given the rule $x \div n$, describe the values of n for which the output value will be greater than the input value. Justify your response.

any number between 0 and 1; Sample answer: When you divide by a fraction, you multiply

by the reciprocal. If the fraction is between 0 and 1, the reciprocal is greater than 1.

12. CCSS **Reason Inductively** Compare and contrast the tables used in this lesson to ratio tables.

Sample answer: When the rule is multiplication or division, the inputs

and outputs form equivalent ratios. When the rule is addition or

subtraction, the inputs and outputs do not form equivalent ratios.

13. CCSS **Model with Mathematics** Write a real-world problem that can be represented by a rule and a table using division.

Sample answer: Natalie is tying quilts for a charity. She has 48 yards of

fabric to make quilts. Make a table that shows the number of quilts she

can make that use 2, 3, and 4 yards of fabric.