6.2 Functions as Equations

Learning Targets

- Write Function Rules
- Evaluate a Function
- Graph a Function
- Apply to Real-Life

Summary: 5 Ways to Represent a Function

Representations of Functions

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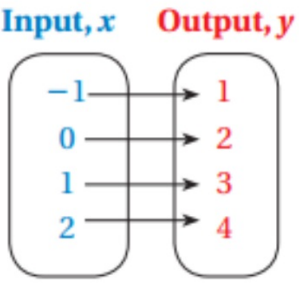
Words An output is 2 more than the input.

Equation $y = x + 2$

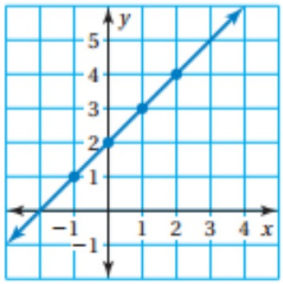
Input-Output Table

Input, x	Output, y
-1	1
0	2
1	3
2	4

Mapping Diagram



Graph



5 ways to Represent a Linear Equation!

Learning Target 1

Writing Function Rules

Equation

Remember: x=input y=output

a. Write a function rule for "The output is five less than the input."

Words The output is five less than the input.

Equation $y = x - 5$

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b. Write a function rule for "The output is the square of the input."

Words The output is the square of the input.

Equation $y = x^2$

Learning Target 1

Writing Function Rules

Equation

Your Turn:

Remember: x=input y=output

1. Write a function rule for "The output is one-fourth of the input."

$y = \frac{1}{4}x$

$y = \frac{x}{4}$

$y = 0.25x$

Learning Target 2

Evaluating A Function

Equation

What is the value of $y = 2x + 5$ when $x = 3$?

$y = 2(3) + 5$

$y = 11$

HOMEWORK: Find the value of y for the given value of x.

y = -2x + 7; x=2

$Y = -2(2) + 7$

$Y = 3$

Learning Target 2

Evaluating A Function

Equation

Your Turn

Find the value of y when $x = 5$.

2. $y = 4x - 1$

19

3. $y = 10x$

50

4. $y = 7 - 3x$

-8

Learning Target 3

Graphing a Function

Equation

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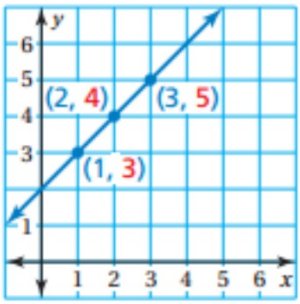
Key Idea

Functions as Tables and Graphs

A function can be represented by an input-output table and by a graph. The table and graph below represent the function $y = x + 2$.

Input, x	Output, y	Ordered Pair, (x, y)
1	3	(1, 3)
2	4	(2, 4)
3	5	(3, 5)



By drawing a line through the points, you graph *all* of the solutions of the function $y = x + 2$.

Learning Target 3

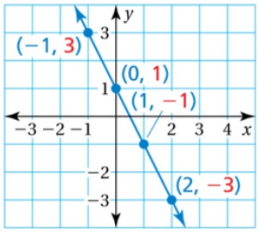
Graphing a Function

Equation

Graph the function $y = -2x + 1$ using inputs of $-1, 0, 1$, and 2.

Input, x	$-2x + 1$	Output, y	Ordered Pair, (x, y)
-1	$-2(-1) + 1$	3	$(-1, 3)$
0	$-2(0) + 1$	1	$(0, 1)$
1	$-2(1) + 1$	-1	$(1, -1)$
2	$-2(2) + 1$	-3	$(2, -3)$

Plot the ordered pairs and draw a line through the points.



Quick t-table

$y = -2x + 1$

x	y
−1	3
0	1
1	−1
2	−3

Learning Target 3

Graphing a Function

Equation

How would YOU choose to graph these?

1. Make a Table 2. Use Slope-Intercept Form

Graph the function.

5. $y = x + 1$

6. $y = -3x$

7. $y = 3x + 2$

Learning Target 4

Real-Life Application

Equation

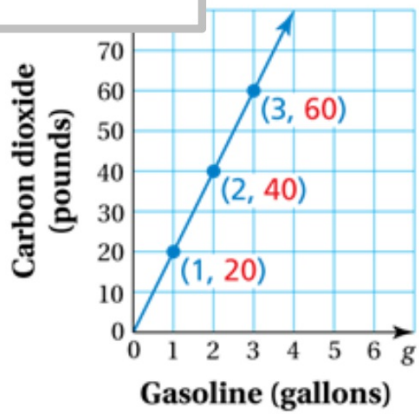
The number of pounds p of carbon dioxide produced by a car is 20 times the number of gallons g of gasoline used by the car. Write and graph a function that describes the relationship between g and p.

Words The number of pounds of carbon dioxide is 20 times the number of gallons of gasoline used.

Equation $p = 20g$

$Y = 20x$

x	y
0	0
1	20
2	40
3	60



Homework

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