

Evaluating functions

warm-up thursday

agenda
warm-up

HW Check

Notes p. 42-43

HW: Practice #1-12

reminders

TEKS Check test will be scanned 6th period today

HW 2.3 due tomorrow (don't forget the last page!)

Quiz Tuesday

essential?

How do I use function notation to evaluate functions?

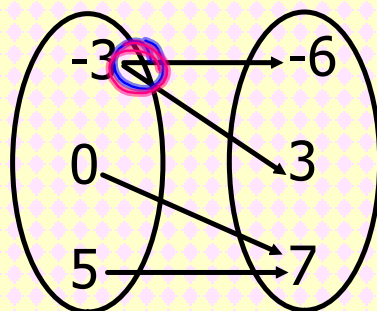
1. Evaluate the expression for $a = 2$, $b = -3$, $c = 8$

$$a + b^2 - 3c$$

$$(2) + (-3)^2 - 3(8) = \boxed{-13}$$

2. Does the following relation represent a function?

Why or why not?



$(-3, 6)$ $(-3, 3)$ $(0, 7)$ $(5, 7)$

NO, x-value of -3 repeats.

↑
no x repeats

Algebra I - Unit 3: Topic 1 – What is a Function/Relation?

Practice – What is a Function/Relation?

p 236

Name _____ Date _____ Period _____

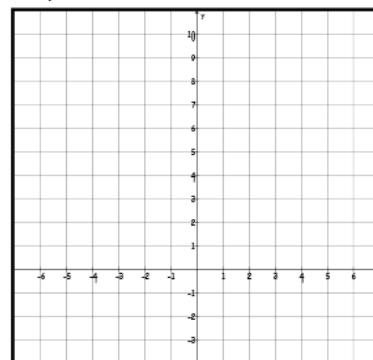
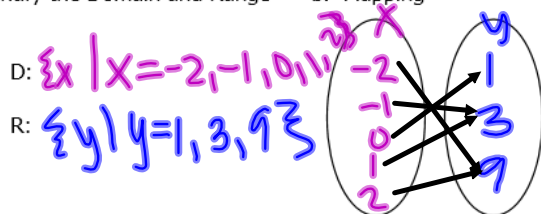
Use the following ordered pairs to identify the Domain and Range, to create a mapping and graph

1. $\{(-2, 9), (-1, 3), (0, 1), (1, 3), (2, 9)\}$

a. Identify the Domain and Range

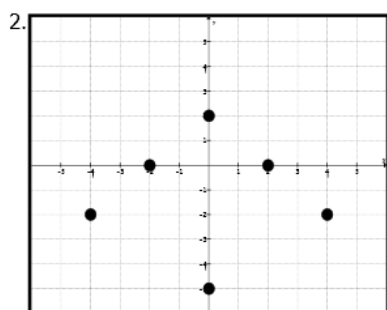
b. Mapping

c. Graph



d. Circle one: Function Not a Function

e. Why or why not? passes VLT
no repeating x's



a. Identify the ordered pairs shown in the graph

b. Mapping

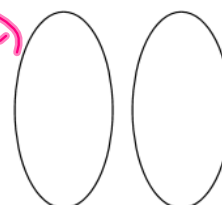
O P:

$(-4, -2), (-2, 0), (0, 2), (0, -5), (2, 0), (4, -2)$

c. Identify the Domain and Range

D:

R:



d. Is the relation a function? _____

e. Why or why not? _____

How can you use the vertical line test to verify that the relation is or is not a function? _____

Algebra I - Unit 3: Topic 1 – What is a Function/Relation?

Determine which of the relations below are functions. State *yes* if the relation is a function and *no* if the relation is not a function.

3. $\{(-2, 7), (-1, 5), (0, 3), (1, 1), (2, 1)\}$
4. $\{(4, 8), (-3, -2), (9, 6), (2, -1), (-4, -5), (2, 7), (-8, 0)\}$
5. Which of the following sets does not represent a function?
- A $\{(-3, -3), (2, 2), (3, 3), (5, 5), (7, 7)\}$
 B $\{(-3, 5), (-1, 0), (2, -3), (5, 5), (6, 0)\}$
 C $\{(-3, -5), (2, 2), (1, 3), (-3, 2), (3, 4)\}$
 D $\{(-8, -5), (-6, -3), (2, 6), (6, -4), (8, 3)\}$

Determine which of the relations below are functions. State *yes* if the relation is a function and *no* if the relation is not a function.

6.

x	y
0	-19
1	-12
2	-4
3	3
4	13
5	27

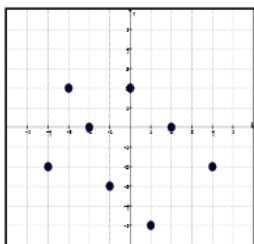
7.

x	y
-5	8
-3	8
-1	-2
1	-2
3	11
5	23

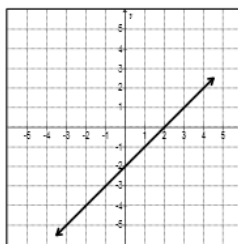
8.

x	y
-2	-7
0	5
-2	-16
2	0
3	6
4	4

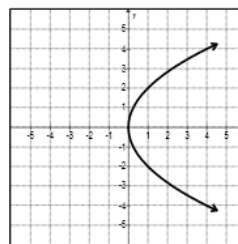
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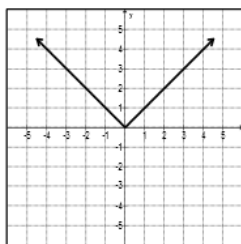
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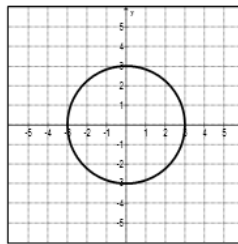
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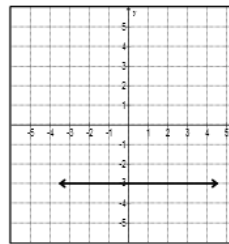
12.



13.



14.

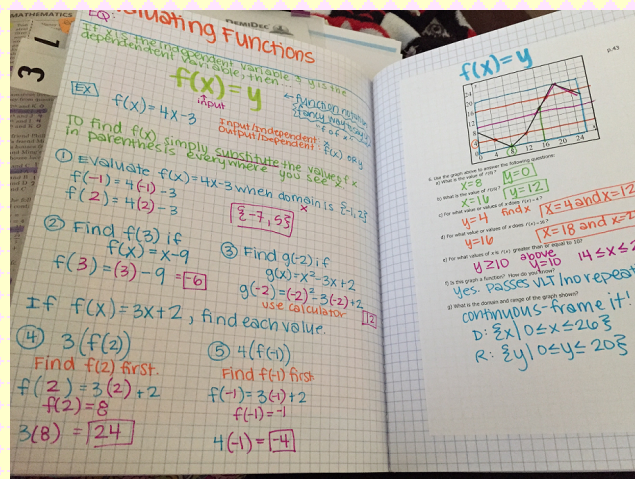


Evaluating functions p. 42-43

essential
question

How do I use function notation to
evaluate functions?

We will WRITE on page 42 and GLUE on page 43.



Evaluating functions p. 42

essential question How do I use function notation to evaluate functions?

If x is the independent variable and y is the dependent variable, then...

$$f(x) = y$$

function notation
"f of x"

$f(x)$ is a fancy way to say y .

example $f(x) = 4x - 3$
 $y = 4x - 3$

input/indep: x
output/dep: y or $f(x)$

To find $f(x)$, simply substitute the value of x (in parenthesis) everywhere you see an x .

replace
plug in

1. Evaluate $f(x) = 4x - 3$ when the domain is $\{-1, 2\}$

plug in $x = -1$ AND $x = 2$

$$y = 4(-1) - 3 \quad \leftarrow f(2) = 4(2) - 3$$

$$y = -7 \quad \leftarrow f(2) = 5$$

$$f(-1)$$

$$\{-7, 5\}$$

2. Find $f(3)$ if $f(x) = x - 9$

$$f(x) = y \quad f(3) = 3 - 9$$

$$f(3) = y \quad \boxed{f(3) = -6}$$

$$x = 3$$

2. Find $g(-2)$ if $g(x) = x^2 - 3x + 2$

$$g(x) = y \quad g(-2) = (-2)^2 - 3(-2) + 2$$

$$g(-2) = y \quad \boxed{g(-2) = 12}$$

$$x = -2$$

If $f(x) = 3x + 2$ find each value.

$$2 + 3(4 - 2(7 + 8))$$

4. $3[f(2)]$ start inside
Find $f(2)$ first.

$$f(2) = 3(2) + 2$$

$$f(2) = 8 \quad 3(8) = \boxed{24}$$

5. $4[f(-1)]$

$$f(-1) = 3(-1) + 2$$

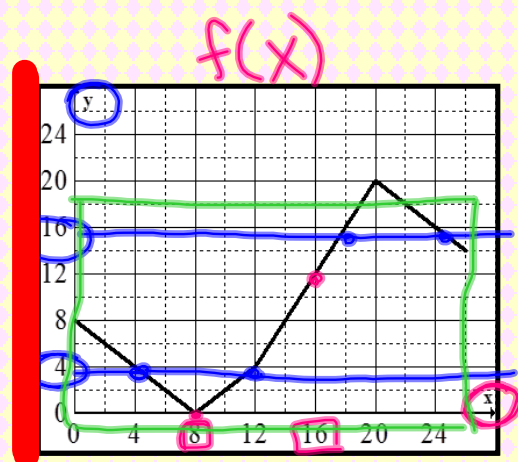
$$f(-1) = -1 \quad 4(-1) = \boxed{-4}$$

Evaluating functions p 43

essential question How do I use function notation to evaluate functions?

$$f(x) = y$$

6 Use the graph above to answer the following questions:



a) What is the value of $f(8)$?

$$f(x) = y$$

$$x=8$$

$$y=0$$

b) What is the value of $f(16)$?

$$x=16$$

$$y=12$$

c) For what value or values of x does $f(x)=4$?

draw a horizontal line

$$y=4$$

$$x=4 \text{ AND } x=12$$

d) For what value or values of x does $f(x)=16$?

$$y=16$$

$$x=18 \text{ AND } x=24$$

e) For what values of x is $f(x)$ greater than or equal to 10?

OMIT

f) Is this graph a function? How do you know?

D: $\{x | 0 \leq x \leq 24\}$ Yes, passes VLT

R: $\{y | 0 \leq y \leq 20\}$ continuous \rightarrow frame it!

Practice - Evaluating Functions**pp 245-251**

Name _____

Date _____ Period _____

Find values for the following functions:

1. $f(x) = 3x + 7$

a. $f(3) =$

b. $4[f(1)] =$

2. $g(x) = x^2 - 1$

a. $g(-2) =$

b. $-3[g(1)] =$

3. Find the 10th term of the sequence that has the rule $A(n) = 32 + (n-1)(-2)$.

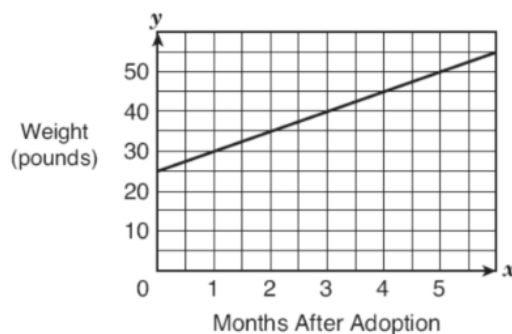
4. What is the input when the output is 58, using the function $A(n) = -5 + (n-1)(3)$?

5. If a function is defined by $f(x) = x^2 - 5$ and the domain is $\{2, 5\}$, what are the dependent values?

6. If $f(x) = 3x^2 + 4x - 6$, then what is $f(\odot)$?

7. A recreational vehicle gets 21 miles per gallon. The relationship of the miles that the car can go to gallons of gas is expressed by the function $f(x) = 21x$, where x is the number of gallons of gasoline. Evaluate the function to determine the number of miles that the vehicle can travel on a full tank if the tank holds 14 gallons.

8. The graph below shows the weight of Denise's dog Elmo over the 6-month period after she adopted him. Evaluate the function to determine the weight of Elmo, if Denise has had him for a period of four months.

**Use the graph to the right to answer the following questions.**

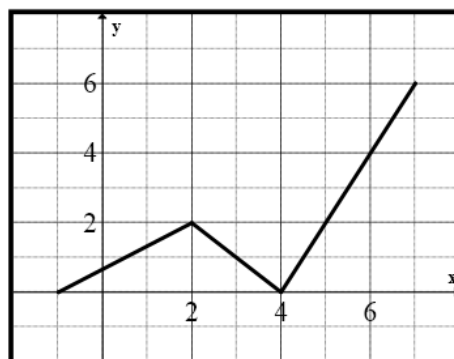
9. What is the value of $f(4)$?

10. For what value or values of x does $f(x) = 2$?

11. For what x -values is $f(x)$ greater than or equal to 2?

OMIT

12. What are the domain and range of the function shown on the graph?



Evaluating functions Homework Check

1. a. 16 b. 40

2. a. 3 b. 0

3. 14

4. 22

5. $\{-1, 2, 0\}$

6. $3(\odot)^2 + 4(\odot) - 6$

7. 294 miles

8. 45 lbs

9. 0

10. $x=2$ and $x=5$

11. $5 \leq y \leq 7$

12. Domain: $\{x \mid -1 \leq x \leq 7\}$

Range: $\{y \mid 0 \leq y \leq 6\}$

