5.1 Function Notation, Domain and Range

Domain:

Range:

Function Notation:

Relation:

Function: Yes No

Function Notation, Domain and Range

ALGEBRA

Write your questions here!

What is a function?

A function is a relation (or correspondence) between two sets, X and Y, in which _____

_____ is mapped to _____ of Y.

The set X is called _____. Sometimes called _____.

The values in Y that get mapped to are called _____.

Sometimes called _____.

In terms of x and y: Each x value can only have 1 y-value!

(However, having the same y value for multiple x values is OK!)

F() =

F() =

F(x) =

x = 

F(a) =

a = 

Which of the following are examples of a function?

a. The assignment of the members of a football team to jersey numbers.

b. The assignment of US Citizens to Social Security numbers.

c. The assignment of grade levels to students.

d. The assignment of students to grade levels.

Are the following relations functions? If so, give the domain and range of the function. and If no, explain why.

1. (3, 5)
(4, 5)
(2, 7)
(5, 2)

F(5) = _____

Solve for x if $F(x) = 5$

Domain:

Range:

2.

X	Y
2	-1
-1	3
2	6
4	2

F(2) = _____

Solve for x if $F(x) = 2$

Domain:

Range:

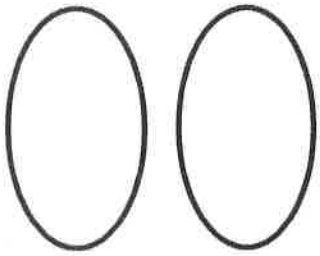
3.

$F(-2) =$ _____

Solve for x if $F(x) = 4$

Domain: Range:

4.



$F(-2) =$ _____

Solve for x if $F(x) = -27$

Domain: Range:

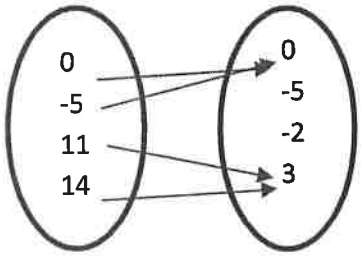
5. $F(x) = 2x + 5$

$F(-2) =$ _____

Solve for x if $F(x) = 5$

Domain:

6.



$F(-5) =$ _____

Solve for x if $F(x) = 3$

Domain:

Range:

Let $F(x) =$ _____ and $G(x) =$ _____. Find the following:

Range:

a.

b.

c.

d.

e.

f. Domain of F(x)?

g. Find a value of m such that $G(m) = 32$

Mr. Brust is selling *Algebro* T-Shirts from his classroom to raise money for ankle warmers. For each T-Shirt sold, Mr. Brust makes a profit of $5. Let the function $B(t) = 5t$ represent this scenario.

a. Describe what $B(3)$ means.

b. Describe what $B(t) = 20$ means.

d. What is a reasonable domain in this context?

e. What is a reasonable range?

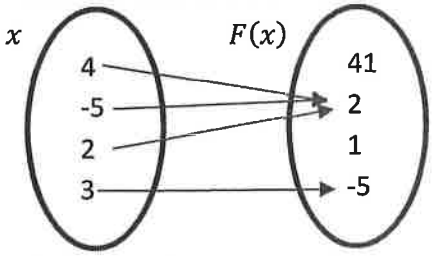
SUMMARY:

Now, summarize your notes here!

Function Notation, Domain and Range

Practice

Determine if the following are functions. For each function, tell what the domain and range is. If it is not a function, explain why.

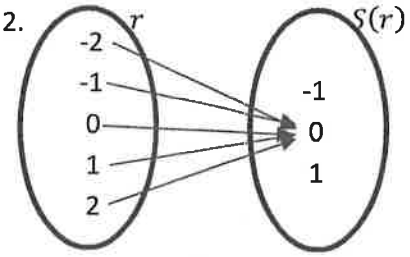
1. 

Function? Yes or No

Domain:

Range:

Find x when $F(x) = 2$

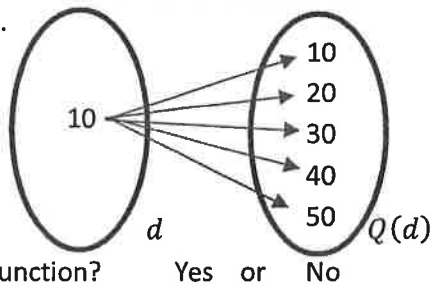
2. 

Function? Yes or No

Domain:

Range:

Find r when $S(r) = 0$

3. 

Function? Yes or No

Domain:

Range:

4. (3,2), (4, 2), (5, 2), (4, 2), (6, 2)

Function? Yes or No

Domain:

Range:

5. (0, 4), (0, 5) (0, 6) (0, 7)

Function? Yes or No

Domain:

Range:

6. (-1, -2), (-2, -3) (-3, -4) (-4, -5)

Function? Yes or No

Domain:

Range:

Find x when $F(x) = -2$

7. The assignment of phone numbers to cell phones.

Function? Yes or No

Domain:

Range:

8. The assignment of math teachers to students.

Function? Yes or No

Domain:

Range:

9. The assignment of students to math teachers.

Function? Yes or No

Domain:

Range:

10. Let the amount of money Bean makes selling b burritos at lunch be defined by $M(b) = 2x - 17$.

a. Complete the following table:

b	0	1	2	3	4	5	w	$(x+2)$
$M(b)$								

b. Give a reasonable domain and range for the function in the context of this problem.

c. Find $M(0.5)$ and $M(-3)$. Does either of these make sense in the context of this problem.

d. Describe what $M(b) = 33$ would mean for this problem. Then, find b.

Let the functions $A(x) = |x| + 2$, $B(x) = \frac{2x-1}{x}$ and $C(x) = x^2 - 2x$. Find the following:

11. $A(-2)$

12. $B(-2)$

13. $C(2)$

14. $C(1) - C(0)$

15. Find x if $A(x) = 11$

16. Give the domain of $B(x)$

17. Find x if $A(x) = 1$

18. $B(n+2)$

19. $B(-1) + C(9)$

20. Give the range of $A(x)$

21. $B(2) + A\left(\frac{1}{2}\right)$

22. Find x if $A(x) = 5$

23. Give the domain of $C(x)$

24. $A(7) + B(6)$

25. $C(16)$

26. Give the domain of $A(x)$

27. Solve the following system:

$$2x - 4y = 30$$
$$12 - y = x$$

28. Solve for y:

$$2x - 4y = 32$$

29. Find the initial value and percent increase for the following model:

$$y = 2.09(1.43)^x$$

I.V._____ % Inc._____

30. Multiply: $(2x - 3)^2$

32. Solve for x:

$$\frac{2x-1}{3} - 3 = 0$$

31. Find the best fit LINEAR regression equation for the following:

x	-3	-1	-5	4	7	16	11	10
y	-8.5	-6.5	-9.5	-5	-3.5	-1	-1.5	-2

Equation:_____

Correlation Coefficient:_____

Absolute Value Graphs

Wrap Up

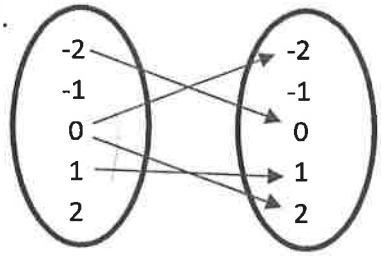
1. (3, 0), (0, 0), (-1, 0), (0, 2)

Is this a Function? Yes or No

Domain:

Range:

2.



Function? Yes or No

Domain:

Range:

3. Given $T(x) = 25x + 2$

Find x when $T(x) = 27$

What is the domain of $T(x)$?

What is the range of $T(x)$?

4. The value of, V, of an investment is given by the function $V(t)$, where t is the number of years since 1995 and V is measured in thousands of dollars. Write an equation using function notation that indicates that the investment had a value of four thousand dollars in 2005.

5. The function $H(y)$, represents the amount of hair found on Sully's head since the year 2005 measured in total number of hair follicles still active. Explain the meaning of $H(12) = 0$ in the context of this problem.

EXIT TICKET

Mr. Bean's house is located in cricket valley. One night, he collects data and concludes that the speed at which crickets chirp is based on the temperature. He comes up with the following function where t represents the temperature (in degrees Fahrenheit) and C represents the number of chirps: $C(t) = 4t - 150$.

Complete the table:

t	40	50	60	70	80	90	100
C(t)							

a. Tell what $C(60) = 90$ means

b. Give a reasonable domain and range for this function.