

Agenda 12/06/18

Check your MAILBOXES

1. Bellwork/Writing:

a. $3(x+7) \geq -20$

b. Evaluate: $3x - 4$ when $x = 5$

2. Lesson: Domain and Range

3. Guided / Independent Practice

4. Homework

$3x + 21 \geq -20$

$\downarrow -21$

$3x \geq -41$

$x \geq -13.6\bar{6}$

$3(5) - 4$

11

Domain	Range	Relation
x-values	y-values	ordered pairs (x,y)
input	output	table
Independent variable	Dependent variable	mapping
		graph

Oct 8-7:35 AM

Sep 7-8:38 AM

Lesson: Domain and Range

Vocabulary

relation
domain
range
function

Domain: is the set of first coordinates (or x-values) of the ordered pairs.

Range: is the set of second coordinates (or y-values) of the ordered pairs

Relation: is the set of ordered pairs

function $\rightarrow f(x)$ or $y =$

Example 1

> Find the range, when the domain is 7.

$f(x) = x + 5$ or $y = x + 5$

$f(7) = 7 + 5$ $y = 7 + 5$

$= 12$ $= 12$

$R: \{12\}$ $R: \{12\}$

Example 2:

> Find the range, when the domain is 10.

$f(x) = 4x - 3$

$\{3, 7\}$ $f(10) = 4(10) - 3$

$= 40 - 3$

$R: \{37\}$ $= 37$

Example 3:

> Find the range, when the domain is ~~4~~, ~~10~~, 2.

$y = -3x - 6$

$x = -4$ $x = 10$ $x = 2$

$y = -3(-4) - 6$ $y = -3(10) - 6$ $y = -3(2) - 6$

$= -3(-4) - 6$ $= -3(10) - 6$ $= -3(2) - 6$

$= 6$ $= -36$ $= -12$

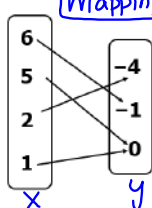
$R: \{-36, -12, 6\}$

Sep 7-8:40 AM

Nov 14-11:22 AM

Example 4

Give the domain and range of the relation.



$$D: \{1, 2, 5, 6\}$$

$$R: \{-4, -1, 0\}$$

Example 5

> Find the Domain and Range.

x	2	4	6
y	-3	-6	-9

$$D: \{2, 4, 6\}$$

$$R: \{-9, -6, -3\}$$

Sep 7-8:39 AM

#6 Ordered pairs

$$\{(-2, 5), (-1, 1), (3, 1), (-1, -2)\}$$

ordered pairs

$$(x, y)$$

$$x \rightarrow -2, -1, -1, 3$$

$$D: \{-2, -1, 3\}$$

*Do not write a number more than one time.

$$y \rightarrow -2, 1, 1, 5$$

$$R: \{-2, 1, 5\}$$

Nov 14-2:47 PM

Example 7

> Find the Domain and Range

x	y
0	-1
2	-1
3	-1
7	-1

$$D: \{0, 2, 3, 7\}$$

$$R: \{-1\}$$

Example 7

> Find the Domain and Range

$$(4, 5), (9, 2), (0, -3)$$

$$\textcircled{1} D: \{-9, -7, -2, 0, 3, 9, 11\}$$

$$R: \{-13, 0, 4, 6, 10, 12\}$$

$$\textcircled{2} D: \{-16, -6, 2, 8, 10\}$$

$$R: \{-7, 3, 5, 7, 11, 15\}$$

$$\textcircled{3} D: \{-16, -4, 6, 10, 15\}$$

$$R: \{-8, -7, -5, 9, 19\}$$

$$\textcircled{4} D: \{-12, -6, 0, 5, 7, 8, 9\}$$

$$R: \{-9, -4, -3, 2, 3, 4, 9\}$$

$$\textcircled{5} D: \{-13, -10, -8, 12, 16, 18\}$$

$$R: \{-9, -2, 2, 3, 7, 8\}$$

$$\textcircled{6} D: \{-18, -16, -10, -8, 3, 7\}$$

$$R: \{11\}$$

$$\textcircled{7} R: \{-23, -3, 15, 23, 29, 39\}$$

$$\textcircled{8} R: \{-43, -41, -38, -36, -34\}$$

Nov 14-11:28 AM

Nov 13-9:25 AM

Homework : Find the Domain + Range

① $\{(3,4), (5,1), (2,1)\}$

②
$$\begin{array}{r|l} x & y \\ \hline 0 & 4 \\ 1 & 5 \\ 2 & -5 \end{array}$$

③ Find the domain given $f(x) = -4x - 6$ when the range is $\{0, 1, 3\}$.

④ Find the domain given $f(x) = x + 5$ when $\{-1, 3, 4\}$

Nov 14-1:34 PM

Agenda 11/13/19

BOOKBAGS in designated area and complete **BELLWORK** paper

Check your **MAILBOX**

Write your **OBJECTIVE**

Objective: I can find the domain and range of functions.

1. Bellwork/Writing:

The formula shown can be used to find A , the amount of money Raul has in his savings account.

Raul wants to find r , the rate of interest his money earns. Which equation is correctly solved for r ?

$$-P \quad A \quad P - P(Pt)$$

A $r = APt$

B $r = A - 2Pt$

C $r = \frac{A}{2Pt}$

D $r = \frac{A - P}{Pt}$

2. Lesson: Domain and Range

3. Guided Practice

4. Independent Practice

5. Homework

QUIZ Wednesday

Aug 20-7:49 AM

Homework : Find the Domain + Range

① $\{(3,4), (5,1), (2,1)\}$

②
$$\begin{array}{r|l} x & y \\ \hline 0 & 4 \\ 1 & 5 \\ 2 & -5 \end{array}$$

③ Find the ~~domain~~ ^{range} given $f(x) = -4x - 6$ when the ~~range~~ ^{domain} is $\{0, 1, 3\}$.

④ Find the domain given $f(x) = x + 5$ when $\{-1, 3, 4\}$

Range:

$y = -1$ $y = 3$ $y = 4$

$-1 + \boxed{x} + 5 = -5$ $3 + \boxed{x} + 5 = -5$ $4 + \boxed{x} + 5 = -5$

$-6 = x$ $-2 = x$ $-1 = x$

D: $\{-6, -2, -1\}$

Nov 14-1:34 PM

① **D:** $\{2, 3, 5\}$
R: $\{4, 1\}$

② **D:** $\{0, 1, 2\}$
R: $\{-5, 4, 5\}$

③ $f(x) = -4x - 6$

$x = 0$ $x = 1$ $x = 3$

$y = -4(0) - 6 = -6$ $y = -4(1) - 6 = -10$ $y = -4(3) - 6 = -18$

R: $\{-18, -10, -6\}$

Nov 18-8:19 AM

Lesson: How do you determine if a function exists when given ordered pairs, table or graph?

Domain: x
Range: y
Relation: Set of ordered pairs (x, y)

To determine if a relation is a function, look at the domain.
If the domain repeats, it is not a function.

- ① $(4, 3), (4, 4), (4, 5)$
D: 4, 4, 4 ← repeats → Not a function.
② $(1, 2), (2, 3), (3, 4), (4, 2)$
Function (Because it does not repeat)

③ Mapping:
NOT a function

repeat $(4, 9), (5, 8), (6, 7)$

④

x	10	11	9	8	7
y	9	8	2	2	2

Function

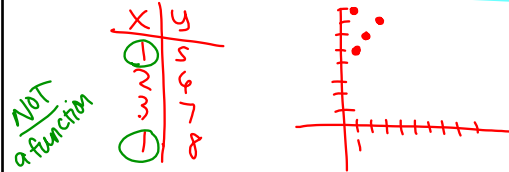
⑤ $(9, 6), (2, 3), (5, 4), (1, 6)$
#1 → repeats → NOT a function

Oct 17-12:13 PM

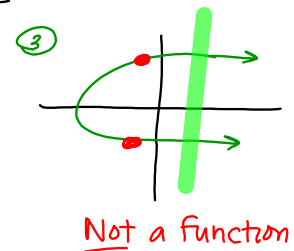
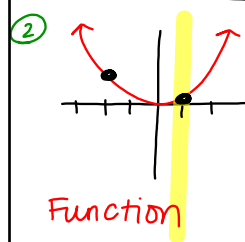
Vertical Line Test VLT

It is used to test if a graph is a function.

If a vertical line could be drawn so that it intersects the graph in more than one position then the relation is not a function if hits more than one point



Function or Not



Sep 7-9:56 PM

Functions or Not?

- ① NF
② F
③ NF
④ NF
⑤ $(4, 6), (5, 6), (7, 6)$
F
⑥ $(3, 1), (4, 2), (3, 5)$
NF
⑦

x	4	6	7	9
y	5	5	4	1

F
⑧

x	9	8	6	4	5
y	5	0	4	4	5

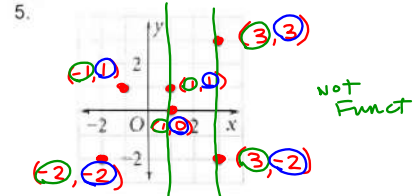
NF

Oct 17-10:50 AM

3. $\left\{ \left(17, \frac{15}{4} \right), \left(\frac{15}{4}, 17 \right), \left(15, \frac{17}{4} \right), \left(\frac{17}{4}, 15 \right) \right\}$
 $(17, 3.75), (3.75, 17), (15, 4.25), (4.25, 15)$
4. $\left\{ \left(-3, \frac{2}{5} \right), \left(-\frac{3}{5}, 3 \right), \left(\frac{3}{2}, -5 \right), \left(5, \frac{2}{5} \right) \right\}$

function.

5.



D: $\{-2, -1, 1, 3\}$
R: $\{-2, 0, 1, 3\}$

Nov 18-9:15 AM

① NF
 $D: \{-2, -1, 1\}$
 $R: \{-2, 0, 2, 3\}$

1. $\{(1, -2), (-2, 0), (-1, 2), (1, 3)\}$
 Function: NO
 Domain: $\{-2, -1, 1\}$
 Range: $\{-2, 0, 2, 3\}$

2. $\{(1, 1), (2, 2), (3, 5), (4, 10), (5, 15)\}$
 Function: Yes
 Domain: $\{1, 2, 3, 4, 5\}$
 Range: $\{1, 2, 5, 10, 15\}$

3. $\left\{\left(17, \frac{15}{4}\right), \left(\frac{15}{4}, 17\right), \left(15, \frac{17}{4}\right), \left(\frac{17}{4}, 15\right)\right\}$
 Function: Yes
 Domain: $\left\{\frac{15}{4}, 17, \frac{17}{4}, \frac{15}{4}\right\}$
 Range: $\left\{\frac{15}{4}, 17, \frac{17}{4}, \frac{15}{4}\right\}$

4. $\left\{\left(-3, \frac{2}{5}\right), \left(-\frac{3}{5}, 2\right), \left(\frac{3}{2}, -5\right), \left(\frac{2}{5}, 3\right)\right\}$
 Function: NO
 Domain: $\left\{-3, -\frac{3}{5}, \frac{3}{2}, \frac{2}{5}\right\}$
 Range: $\left\{\frac{2}{5}, 2, -5, 3\right\}$

6.
 Relation: $\{(-2, 2), (0, 0), (2, -2), (4, -4)\}$
 Domain: $\{-2, 0, 2, 4\}$
 Range: $\{2, 0, -2, -4\}$
 Function: Yes

$D: \{-3, 1.5, 5\}$
 $R: \{-5, .4, .6\}$

Nov 18-9:35 AM

Agenda 11/19/19
 BOOKBAGS in designated area and complete BELLWORK paper
 Check your MAILBOX
 Write your OBJECTIVE

Objective: I can find the domain and range of functions.

1. Bellwork/Writing:

The rate to rent a small moving van is \$30 per day, plus \$0.50 per mile. Jada rented a van to drive to her new home. It took 2 days, and the van cost \$360. How many miles did she drive?

$X \rightarrow$ miles

$30(2) = 60$
 $60 + 0.50X = 360$
 -60
 $0.50X = 300$
 $\div 0.50$
 $X = 600$

She drove 600 miles

2. Lesson: Domain and Range
 3. Guided Practice
 4. Independent Practice
 5. Homework

QUIZ Wednesday

Aug 20-7:49 AM

7. $\{(-1, 2), (0, 3), (1, 2), (2, 0)\}$
 Relation: $\{(-1, 2), (0, 3), (1, 2), (2, 0)\}$
 Domain: $\{-1, 0, 1, 2\}$
 Range: $\{0, 2, 3\}$
 Function: Yes

8.
 Relation: $\{(-2, 2), (0, 0), (2, -2), (4, -4)\}$
 Domain: $\{-2, 0, 2, 4\}$
 Range: $\{2, 0, -2, -4\}$
 Function: NO

9. $\{(-2, -1), (0, 3), (5, 4), (-2, 3)\}$
 Domain: $\{-2, 0, 5\}$
 Range: $\{-1, 3, 4\}$
 Function: NO

10. $\{(-1, 5), (0, 3), (2, 3), (3, -1)\}$
 Domain: $\{-1, 0, 2, 3\}$
 Range: $\{5, 3, -1\}$
 Function: Yes

11. $\{(-1, 7), (0, -3), (1, 10), (0, 7)\}$
 Domain: $\{-1, 0, 1\}$
 Range: $\{-3, 7, 10\}$
 Function: NO

12. $\left\{\left(\frac{1}{2}, 2\right), \left(\frac{1}{4}, 2\right), \left(\frac{1}{8}, 2\right), \left(\frac{1}{2}, 2\right)\right\}$
 Domain: $\left\{\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{2}\right\}$
 Range: $\{2\}$
 Function: Yes

$D: \left\{-\frac{1}{2}, \frac{1}{8}, \frac{1}{4}, \frac{1}{2}\right\}$
 $R: \{-0.5, 0.125, 0.25, 0.5\}$

Nov 19-7:33 AM

Find the Range given the Domain in each situation on the left. Be sure to show work.

1a) $y = 3x - 2$
 Domain: $\{-1, 2, 4\}$
 $x = -1 \rightarrow y = 3(-1) - 2 = -5$
 $x = 2 \rightarrow y = 3(2) - 2 = 4$
 $x = 4 \rightarrow y = 3(4) - 2 = 10$
 Range: $\{-5, 4, 10\}$

1b) Now rewrite this function as a set of ordered pairs.
 (x, y)
 $(-1, -5), (2, 4), (4, 10)$

2a) $y = 2x^2$
 Domain: $\{-3, 0, 4\}$
 $x = -3 \rightarrow y = 2(-3)^2 = 18$
 $x = 0 \rightarrow y = 2(0)^2 = 0$
 $x = 4 \rightarrow y = 2(4)^2 = 32$
 Range: $\{0, 18, 32\}$

2b) Now rewrite this function as a mapping.

3a) $f(x) = 2x^2 + 5$
 Domain: $\{-2, 0, 1, 6\}$
 $x = -2 \rightarrow y = 2(-2)^2 + 5 = 13$
 $x = 0 \rightarrow y = 2(0)^2 + 5 = 5$
 $x = 1 \rightarrow y = 2(1)^2 + 5 = 7$
 $x = 6 \rightarrow y = 2(6)^2 + 5 = 77$
 Range: $\{5, 7, 13, 77\}$

3b) Now rewrite this function as a table of values.

x	y
-2	13
0	5
1	7
6	77

4a) $g(x) = -4 - 2x$
 Domain: $\{-3, -2, -1, 0, 1\}$
 $x = -3 \rightarrow y = -4 - 2(-3) = 2$
 $x = -2 \rightarrow y = -4 - 2(-2) = 0$
 $x = -1 \rightarrow y = -4 - 2(-1) = -2$
 $x = 0 \rightarrow y = -4 - 2(0) = -4$
 $x = 1 \rightarrow y = -4 - 2(1) = -6$
 Range: $\{2, 0, -2, -4, -6\}$

4b) Now represent this function as a discrete graph.
 (x, y)
 $(-3, 2)$
 $(-2, 0)$
 $(-1, -2)$
 $(0, -4)$
 $(1, -6)$

Nov 19-8:29 AM

Example 1: Express the relation $\{(-4, -1), (-1, 2), (1, -4), (2, -3), (4, 3)\}$ as a table, a graph, and a mapping. Then, state the domain and range of the relation.

x	y
-4	-1
-1	2
1	-4
2	-3
4	3

Domain: $\{-4, -1, 1, 2, 4\}$
Range: $\{-4, -3, -1, 2, 3\}$

Function

function or not a function

$(-4, -1)$
x, y

a) Express the relation $\{(-2, 1), (-1, 0), (1, 2), (2, -4), (4, 3)\}$ as a table, a graph, and a mapping. Then, state the domain and range of the relation.

x	y
-2	1
-1	0
1	2
2	-4
4	3

Domain: $\{-2, -1, 1, 2, 4\}$
Range: $\{-4, 0, 1, 2, 3\}$

Function

Nov 19-7:38 AM