Happy Monday! I am so glad you are here today.

1. Write a relation that is a function
2. Write an equation that is linear
3. Write a chart that is nonlinear
4. Create a table for the function rule $y=2x+3$
5. Graph the function rule from problem 4's chart
6. Describe the difference between continuous and discrete.

Unit 4 Test → Thursday

How will test corrections for the Unit 4 Test work, considering the end of the quarter.

Homework check: Math 1 - Page 265 # 9-21 odd and 26

4th Block - Review Thursday's Homework Math 1 - Page 257

#18-20, 22-23, 29-33

Begin class with stations

Posted on my website under the notes section.
Work with your groups to complete all stations.
When you are done, we will talk about them as a class!

Click HERE for the stations!

Pause here after completing the stations!

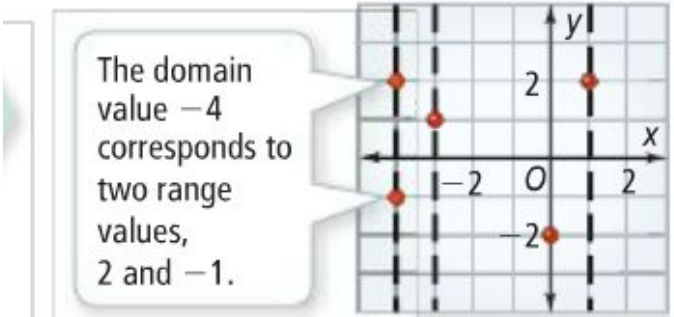
We will move on as a class.

A function is a a set of ordered pairs in which no two ordered pairs have the same first coordinate as the second coordinate

How can we determine if a relation is a function?

1. Each x value should only have one y value
   a. AKA each input should only have one output
2. Does it pass the vertical line test?

A $\{(-4, 2), (-3, 1), (0, -2), (-4, -1), (1, 2)\}$



The relation is not a function.

The domain is all x values
The range is all y values

Relations can be written in different ways

- Charts
- Mapping
- Graphing
- Ordered pairs

Mapping is the new one for today… let’s make sure we understand it!

Function Notation

You have seen functions represented as equations involving x and y, such as $y = -3x+1$.
Below is the same equation written using **function notation.**
$f(x) = -3x+1$
Notice that $f(x)$ replaces y. It is read “f of x”. The letter f is the name of the function, not a variable.

Function Notation (continued)

Function notation is used to emphasize that the function value $f(x)$ depends on the independent variable x. Other letters can be used such as g and h.

Ex: The function $w(x)=250x$ represents the number of words $w(x)$ you can read in x minutes. How many words can you read in 8 minutes?

f(g(x))

f(x)=3x+2 g(x)=-2x+4

Find f(g(2))

Find g(f(-1))

Classwork: Page 271 #8, 10, 12-16, 18-24 even, 32

Identify the domain and range of each relation. Use a mapping diagram to determine whether the relation is a function.

See Problem 1.

8. $\{(3, 7), (3, 8), (3, -2), (3, 4), (3, 1)\}$

9. $\{(6, -7), (5, -8), (1, 4), (7, 5)\}$

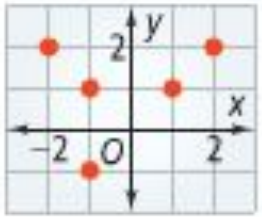
10. $\{(0.04, 0.2), (0.2, 1), (1, 5), (5, 25)\}$

11. $\{(4, 2), (1, 1), (0, 0), (1, -1), (4, -2)\}$

Use the vertical line test to determine whether the relation is a function.

See Problem 2.

12.



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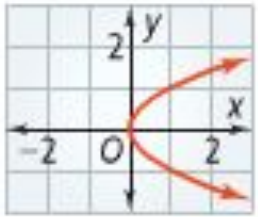

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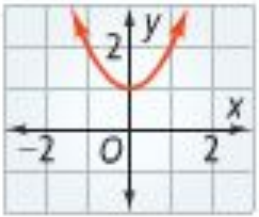

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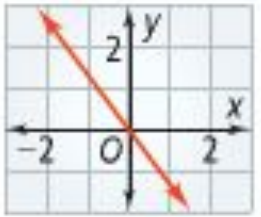

16. Physics Light travels about 186,000 mi/s. The function $d(t) = 186{,}000t$ gives the distance $d(t)$, in miles, that light travels in t seconds. How far does light travel in 30 s?

See Problem 3.

Classwork: Page 271 #8, 10, 12-16, 18-24 even, 32

Find the range of each function for the given domain. See Problem 4.

18. $f(x) = 2x - 7; \{-2, -1, 0, 1, 2\}$

19. $g(x) = -4x + 1; \{-5, -1, 0, 2, 10\}$

20. $h(x) = x^2; \{-1.2, 0, 0.2, 1.2, 4\}$

21. $f(x) = 8x - 3; \left\{-\frac{1}{2}, \frac{1}{4}, \frac{3}{4}, \frac{1}{8}\right\}$

Find a reasonable domain and range for each function. Then graph the function. See Problem 5.

22. Fuel A car can travel 32 mi for each gallon of gasoline. The function $d(x) = 32x$ represents the distance $d(x)$, in miles, that the car can travel with x gallons of gasoline. The car's fuel tank holds 17 gal.

23. Nutrition There are 98 International Units (IUs) of vitamin D in 1 cup of milk. The function $V(c) = 98c$ represents the amount $V(c)$ of vitamin D, in IUs, you get from c cups of milk. You have a 16-cup jug of milk.

Determine whether the relation represented by each table is a function. If the relation is a function, state the domain and range.

24.

x	0	3	3	5
y	2	1	−1	3

25.

x	−4	−1	0	3
y	−4	−4	−4	−4

Homework:

Test corrections due Friday

Create a poster on a piece of computer paper (not large!)
Topic options:

- Graphing a function rule by using a chart
- Determining function/not a function from a chart, equation, graph, or map
- Determining linear/nonlinear from a chart, equation, graph, or map
- Function notation