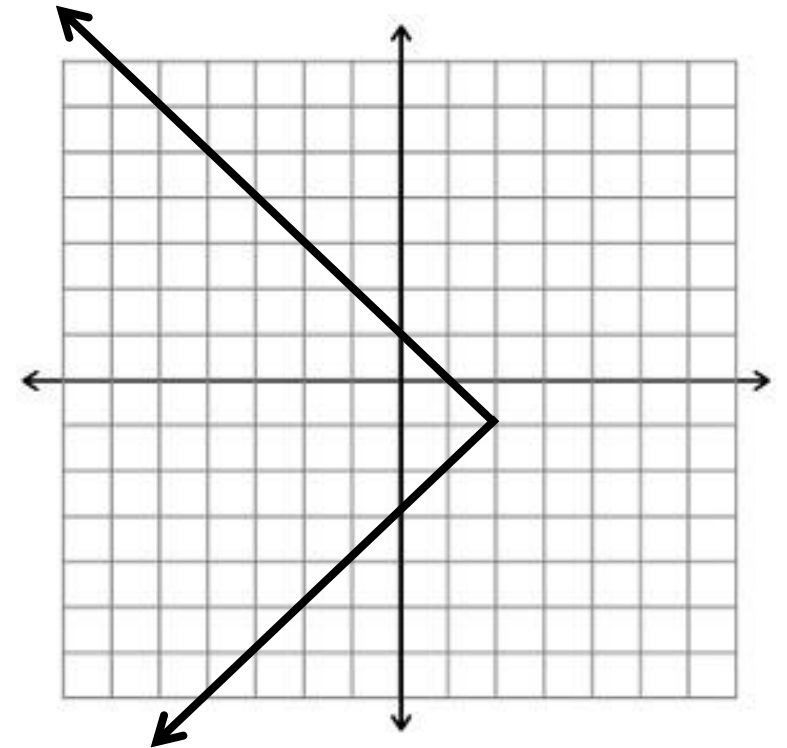


Bell Work:

1. What is a number relationship?
2. Solve and show all work. $(4x^{-5}y^6z^3)(2xy^{-3}z^2)^3$
3. State the domain and range in interval notation of the graph to the right.
4. State the domain and range in set notation of the graph to the right.



Today's lesson, you will learn if a number relationship is a function or not?

Functions

Yes or No?

What is a function?

A function is a special number relationship where each domain number is paired up with one and only one range number.

Are these functions?

Look for double domain numbers.

$(-2, 5), (-1, 3), (0, 1), (1, -1), (2, -3)$ *Yes*

$(1, 3), (2, 4), (3, 3), (3, 4), (4, 3)$ *No, double domain numbers*

<i>x</i>	<i>y</i>
2	-2
-1	-1
-2	0
-1	1
2	2

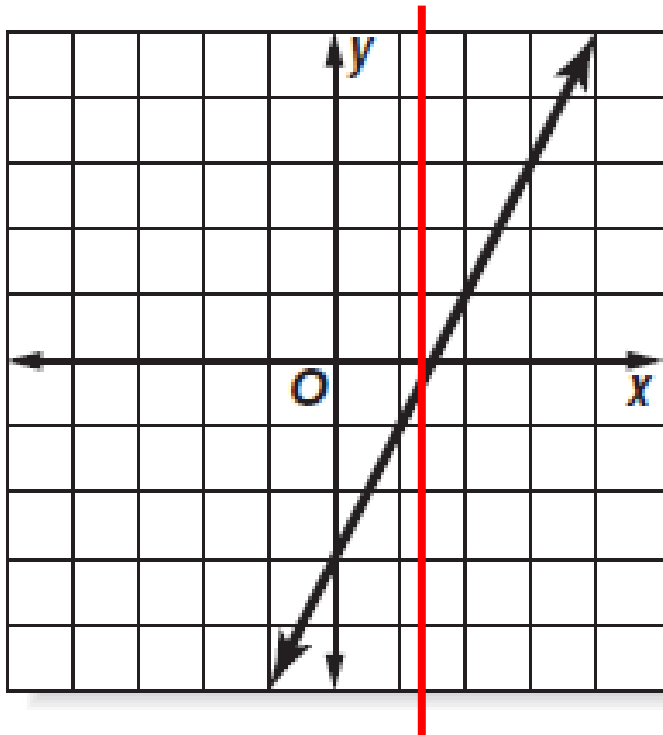
*No,
double
domain
numbers*

HR	50	73	49	47	48
RBI	147	160	128	141	131

Source: *The World Almanac*

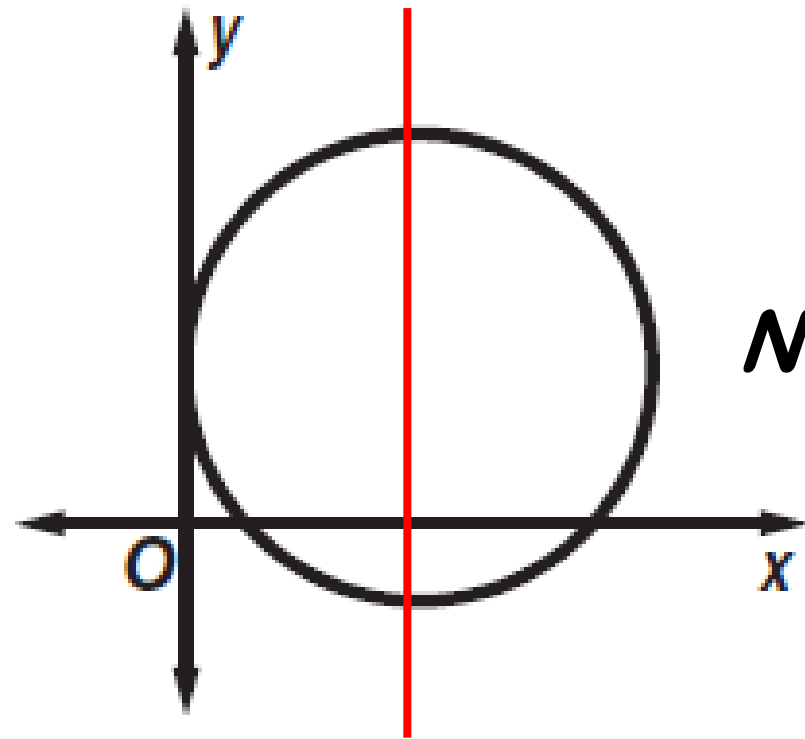
Yes

Are these functions?
Use the vertical line test.



Yes

When the vertical line goes from left to right, it only touches the line at one point at any time.

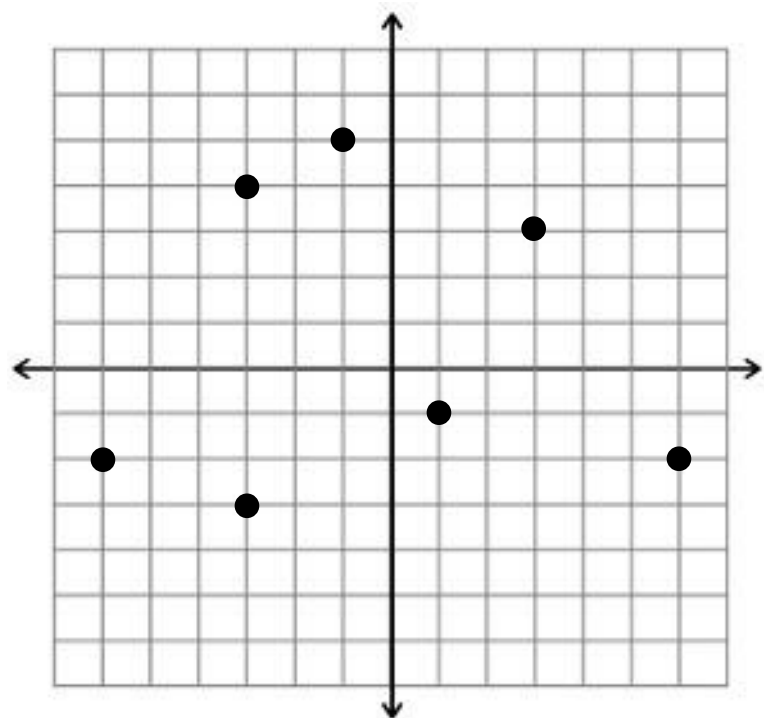


No

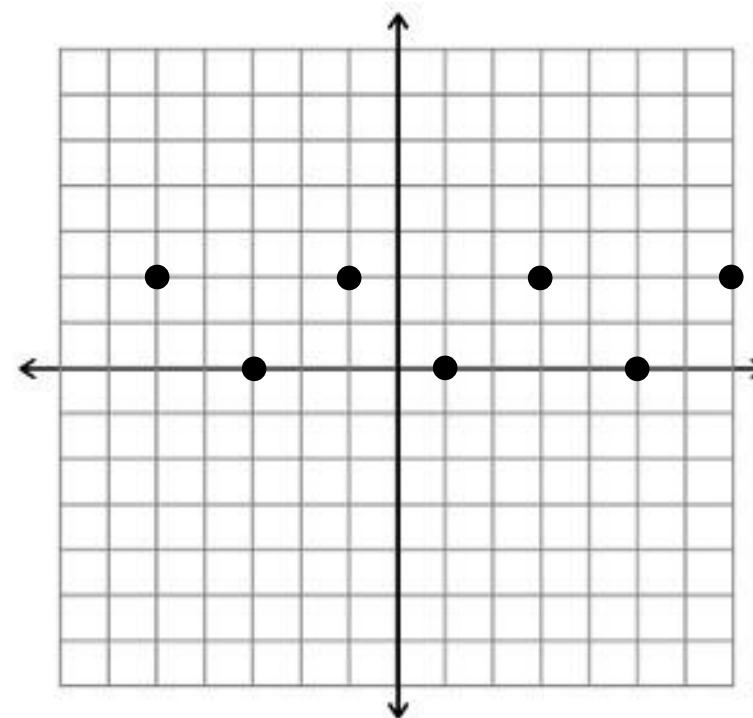
The vertical line touches the circle twice.

Are these functions?

Look for points directly above or below.



No

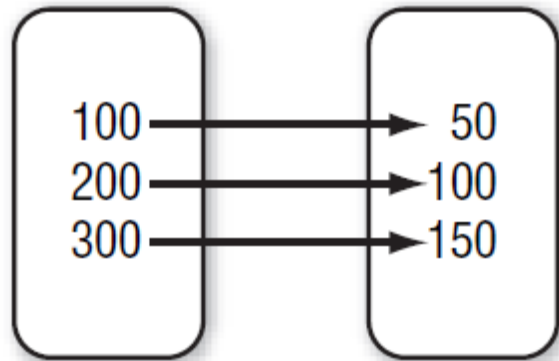


Yes

One point is directly above or below another point.

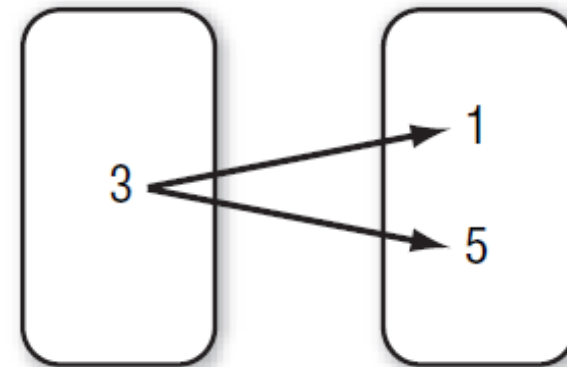
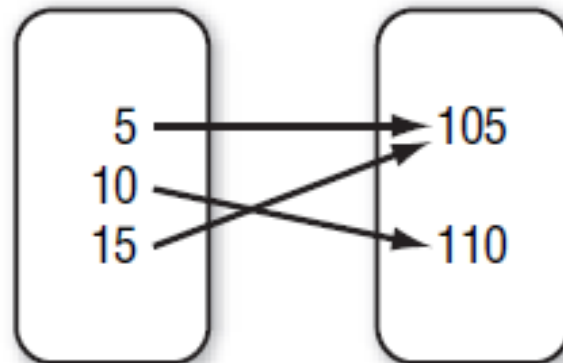
Are these functions?

Look for two or more arrows from the same domain number.



Yes

Yes



No

What is a function?

A function is a special number relationship where each domain number is paired up with one and only one range number.

For ordered pairs and tables,...

look for double domain numbers.

For graphs,...

use the vertical line test.

For mappings,...

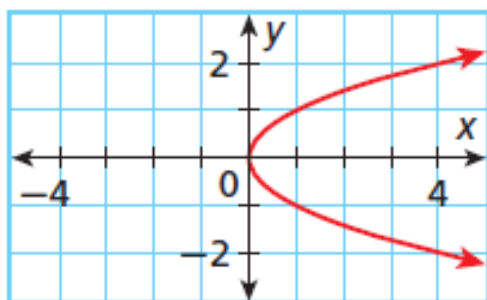
look for more than one arrow from a domain number.

Assignment

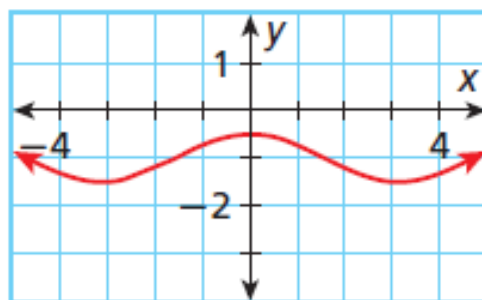
Page 48 #13 – 15, 22 – 27, 44 – 46, and 58 – 61

Use the vertical-line test to determine whether each relation is a function. If not, identify two points a vertical line would pass through.

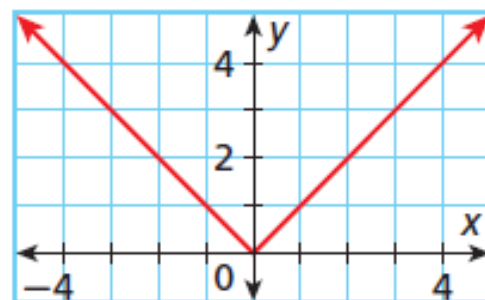
13.



14.

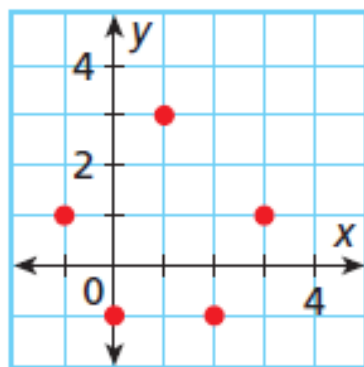


15.

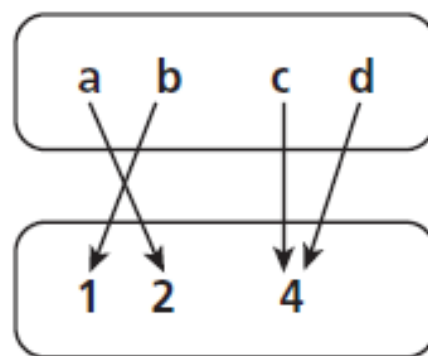


Give the domain and range of each relation. Then explain whether the relation is a function.

22.



23.



24. $\{(7, 1), (7, 2), (7, 3), (7, 4), (7, 6)\}$

25. $\{(9, 3), (7, 3), (5, 3), (3, 3), (1, 3)\}$

26.

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

27.

x	7	6	5	4	3
y	-1	2	-1	2	3

Simplify each expression. Assume all variables are nonzero. (Lesson 1-5)

58. $(-3y^4)^3$

59. $\frac{(10w^2)^2}{5w^5}$

60. $(4c^6d^2)^2$

61. $\left(\frac{x^3}{z}\right)^7$