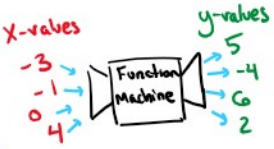
2.5 Notes

Wednesday, June 19, 2019 8:48 AM

x	y
-3	5
-1	-4
0	6
4	2

DOMAIN: Set of all x-values (inputs)

RANGE: Set of all y-values (outputs)



Criteria to be a Function:

- All x-values need to be paired with a single y-value
- No x-values can be paired with more than one y-value

* If an x and y relationship is not a function, then it is automatically a RELATION

ex

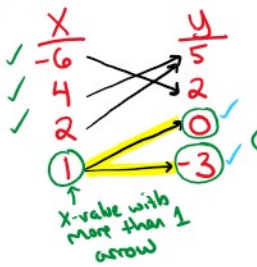
Domain	-4	1	6	8	1
Range	3	5	0	-2	-7

repeated x-value

two different y-values

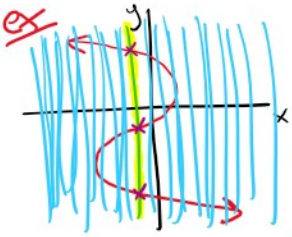
FUNCTION OR RELATION

ex

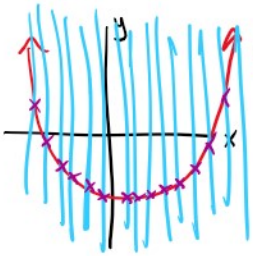


FUNCTION OR RELATION

ex



FUNCTION OR RELATION



FUNCTION OR RELATION

Vertical Line Test - if you can draw a vertical line that crosses the graph more than once, then the graph is not a function

- Evaluating a Function:

$3x^2 + 2x - 1$ when $x = 5$

$3(5)^2 + 2(5) - 1$

75 + 10 - 1

84

Function "f of x"

$f(x) = 3x^2 + 2x - 1$ ~~when x=5~~

$3(5)^2 + 2(5) - 1$

$f(5) = 84$

ex $f(x) = 4x - 6$

$4(-3) - 6$

-12 - 6

$f(-3) = -18$

Find an Inverse Function:

Steps:

1. Rewrite f(x) as y
2. Rewrite equation by switching x → y and y → x
3. Solve for y (isolate the y-variable)
4. Rewrite y as $f^{-1}(x)$

ex $f(x) = \sqrt{2x-5}$

1. $y = \sqrt{2x-5}$
2. $x^2 = 2y - 5$
3. $x^2 + 5 = 2y$

$\frac{x^2+5}{2} = y$

④ Rewrite y as $f^{-1}(x)$

"the inverse of f(x)"

$\frac{x+5}{2} = y$

$\frac{x^2+5}{2} = y$

$f(x) = \sqrt{2x-5}$

$f^{-1}(x) = \frac{x^2+5}{2}$

The Inverse Function