

Aug. 28, 2013

Sects. 1-3 & 4

Functions

Defn.

Exs.

Domain / Range

Funct. Notation / Eval

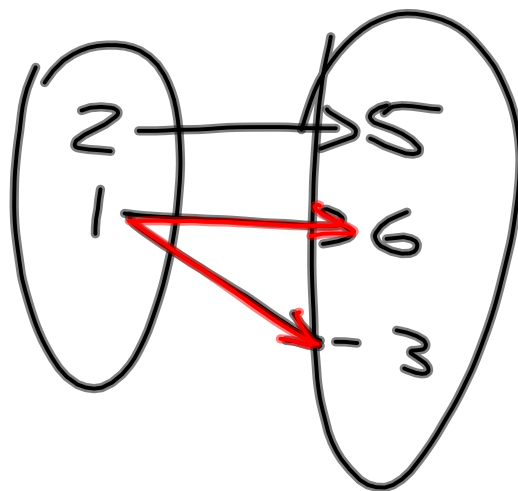
Inc. / Dec.

Funct : A relation that maps each individual input to exactly one individual output.

e.g.

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

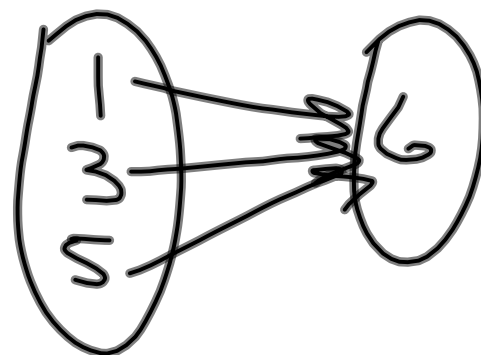
$$\{ (1, 6) (2, 5) (1, -3) \}$$



Not a
fnet.

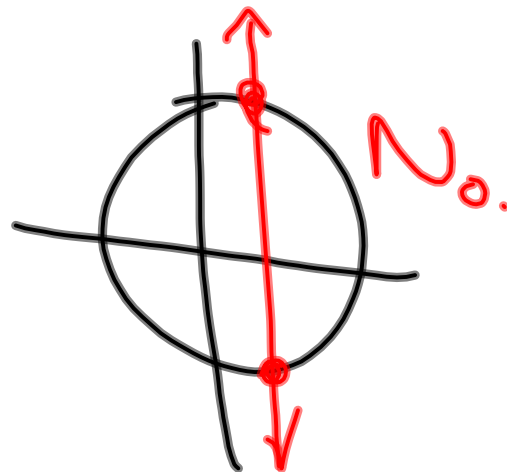
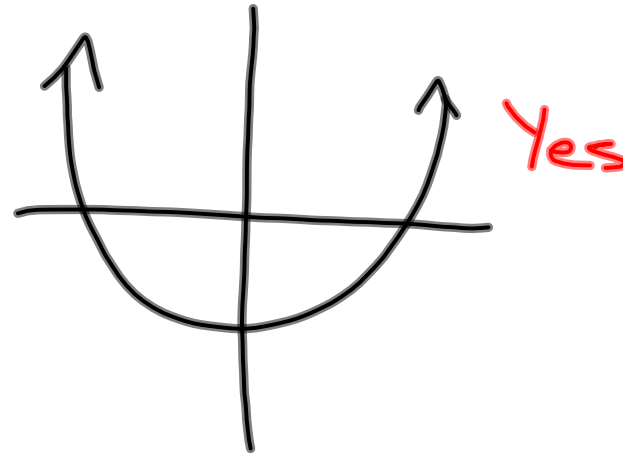
$$\{(1,6) (3,6) (5,6)\}$$

Funct. ?



Yes, a
funct.

Graphically (Fund.?) Vertical Line Test (VLT)



Funct. Notation

$$Y = f(x)$$

Y is a funct. of x.

X is the input independent variable

Y is the output dependent variable

$$f(x) = 5x - 7$$

Find $f(2)$

$$f(2) = 5(2) - 7$$

$$= 10 - 7$$

$$f(2) = 3$$

$$2 \rightarrow 3$$

$$(2, 3)$$

$$g(x) = -x^2 + x + 1$$

$$g(4)$$

$$-\boxed{4}^2 + \boxed{4} + 1$$

$$-16 + 4 + 1$$

$$g(4) = -11$$

Domain / Range

Domain: The #'s we can
put into a fncn

Range: The answers.

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

$$D: \{2, -1, 4, 6\}$$

$$\{-1, 2, 4, 6\}$$

$$R: \{-3, 1, 3, 5\}$$

$$f(x) = 2x + 3$$

No bad #

D: All real #s.
 $(-\infty, \infty)$

$$f(x) = x^2 - 3x + 2$$

$$D: (-\infty, \infty)$$

$$f(x) = \frac{1}{x-3}$$

$$\text{Bad} = 3$$

$$D: \{x \mid x \neq 3\} \quad (-\infty, 3) \cup (3, \infty)$$

$$f(x) = \sqrt{4-x}$$

Bad: 5, 6, 7, 8, ...

4.5, 4.1, 4.01

Good: 4

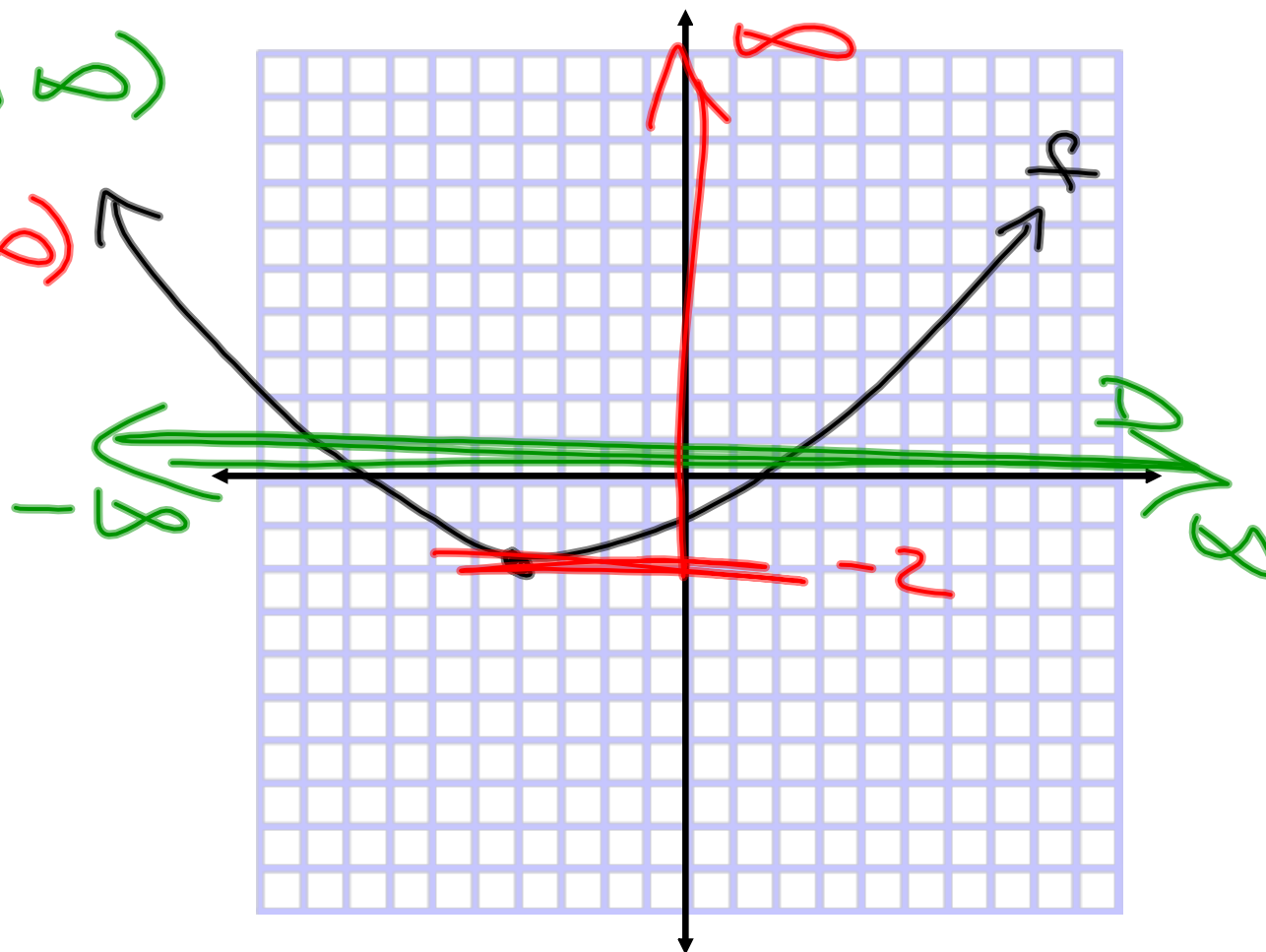
$$D: \{x \mid x \leq 4\}$$

$$(-\infty, 4]$$

Find D/R:

$$D: (-\infty, \infty)$$

$$R: [-2, \infty)$$



Increasing/Decreasing

The answers always come
from the x-axis.

In interval notation.

