

Put a check under "Yes" if you want to share.

Check under "No," otherwise

If you share, I'll include your work on the website for people to browse.

$$|x + 7| \geq 5$$

$$x + 7 \geq 5 \quad \text{OR} \quad x + 7 \leq -5$$

$$\{x \mid x \geq -2 \quad \text{OR} \quad x \leq -12\}$$

They work fine, silly.

Finish your test. Turn it in Monday @
the start of class.

Dexter: Where are you?

Midterm would be stripped-down
more. Maybe only include 80% of
the concepts.

This "practice" test was pretty
much 100%.

Function - A rule that assigns to each $x \in \text{Domain}$ to one $y \in \text{Range}$.

Some think of a function f as a collection (set) of ordered pairs, where the 1st coordinate is never repeated.

$R = \{ (1, 3), (5, 7), (6, -1), (5, 11) \}$ is a "relation" that is not a function, because $x=5$ is assigned to both $y=7$ and $y=11$.

$f = \{ (1, 3), (5, 7), (6, -1) \}$ is a function with a function we can say stuff like "f of 1 is 3"

$$f(1) = 3$$

We can't say $R(5) = \text{anything unique}$
 $R(5) = 7?$ or $R(5) = 11?$

$R(5)$ is not well-defined.

\in - "is an element/member of"

Conjunction - and, \cap , Intersect

Disjunction - or, \cup , Union

Bigger set $\left\{ \begin{array}{l} x \in A \cup B \text{ means} \\ x \in A \text{ OR } x \in B \text{ OR } x \in A \text{ and } B \\ x \in A \cap B \text{ means} \\ x \in A \text{ AND } x \in B \end{array} \right.$

$\rightarrow x \in A \cup B = \{ \omega \mid \omega \in A \text{ OR } \omega \in B \}$

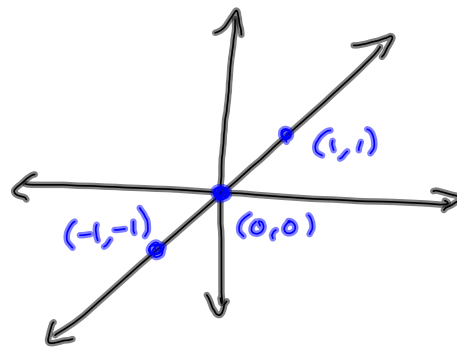
Examples of functions (families)

- | | Func. | Basic Func. |
|---|---|---|
| ① | $g(x) = ax + b$
linear function | $f(x) = x$
identity function |
| ② | $g(x) = ax^2 + bx + c$
quadratic function | $f(x) = x^2$
squaring function
square |
| ③ | $g(x) = ax^3 + bx^2 + cx + d$
cubic function | $f(x) = x^3$
cube function
cubing |
| ④ | $g(x) = a\sqrt{bx+c} + d$
square root function | $f(x) = \sqrt{x}$
square root
function |
| ⑤ | $g(x) = a\sqrt[3]{bx+c} + d$ | $f(x) = \sqrt[3]{x}$
cube root
function |
| ⑥ | $g(x) = a bx+c + d$ | $f(x) = x $
absolute value. |

① $f(x) = x$: identity

$$y = x$$

x	y
-1	-1
0	0
1	1



$f(x-3)$

move right 3 units.

Delay by 3 units.

Add 3 to every x-coord!

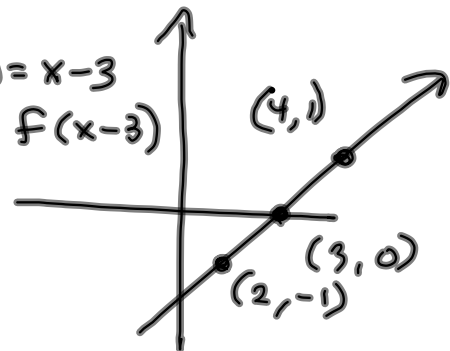
$$y = x - 3$$

$$f(x) = x$$

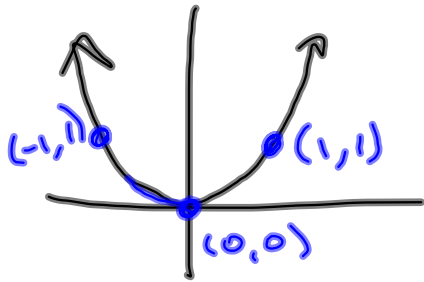
$$f(x-3) = x - 3$$

$$g(x) = x - 3$$

$$= f(x - 3)$$

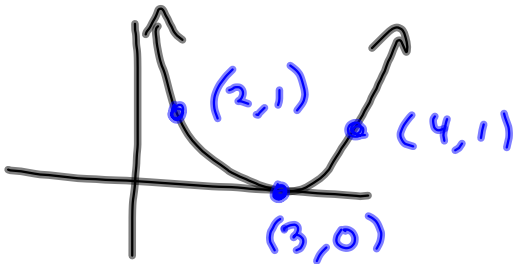


② Same deal with $f(x) = x^2$



x	y = x ²
-1	1
0	0
1	1

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



$$f(x+3) \text{ left } 3$$

$$f(x) - 3 \text{ down } 3$$

$$f(x) + 3 \text{ up } 3$$

} Vertical
(rigid)
shifts.