

Good Morning Happy Friday!

Agenda: Free seat Friday
(sit where you'd like)

- Warm UP

- Check Homework and go over

- Definition of Function, Relation, Evaluating a function, Vertical and Horizontal lines, Parallel and Perpendicular.



Warm UP

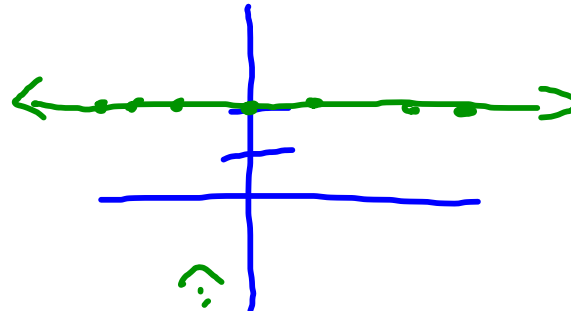
1) In your groups list 20 things you remember/ know about math.

⑧ $y=2$

$$y = 0x + 2$$

slope of zero

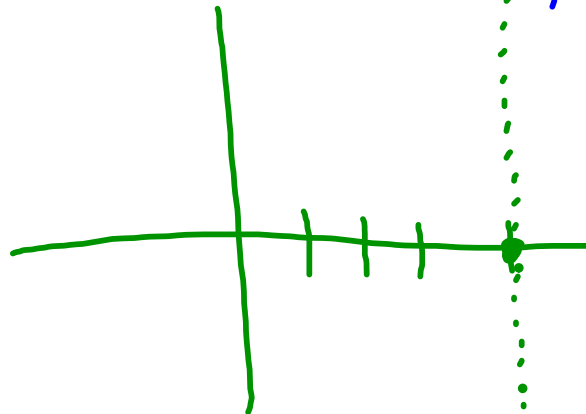
$$\frac{0}{x}$$



⑬

$$x = 4$$

N/A



$$\frac{y}{0}$$

undefined

7 Functions

⑦ Piecewise

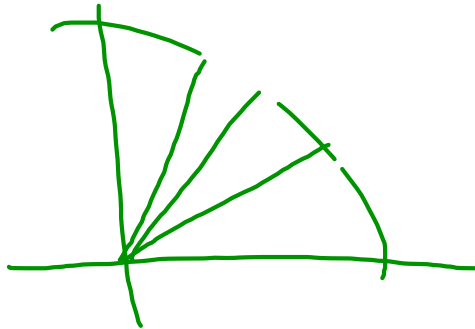
$$f(x) = \begin{cases} x+3, & x < 0 \\ x^2, & x \geq 0 \end{cases}$$

\sqrt{x}

square
root

$|x|$

absolute
value



Function Notes

Relation: A relationship
b/w 2 sets
of values.

Ordered Pairs (x, y) .

Domain: The set of
 x values (independent).

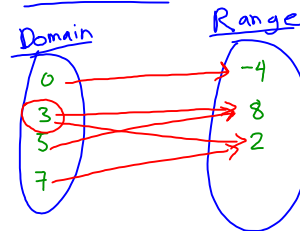
Range: The set of y -values
(dependent)

EX/ $\{(-1, 3), (-2, 1), (-3, -3), (-4, -5)\}$

Domain: $\{-1, -2, -3, -4\}$

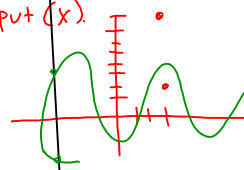
Range: $\{3, 1, -3, -5\}$

Mapping



$\{(0, -4), (3, 8), (5, 8), (7, 2)\}$

Function: A special relation
where each output (y) has
a unique input (x).



Vertical Line test: Pass a vertical line through a graph if it hits the graph only once it is a function.

$$y = 3x + 5$$

$$m = 3$$

Parallel and thru $(8, 3)$
Point slope

$$m = 3$$

$$(y - y_1) = m(x - x_1)$$

$$y - 3 = 3(x - 8)$$

$$y - 3 = 3x - 24$$

$$+3 \quad +3$$

$$y = 3x - 21$$

Parallel
($m = 3$)

thru $(-10, 5)$
 x, y

$$y - 5 = 3(x - 10)$$

$$y - 5 = 3(x + 10)$$

$$y = 3x + 30 + 5$$

$$y = 3x + 35$$

Perpendicular to $y = -2x + 4$

go thru $(0, 8)$

$$\text{slope: } \frac{1}{2}$$

$$y - 8 = \frac{1}{2}(x - 0)$$

$$y - 8 = \frac{1}{2}x$$

$$y = \frac{1}{2}x + 8$$

Function Notes

Relation: A relationship b/w
2 sets of values.
Usually ordered pairs.

Domain: The set of x 's (independent)

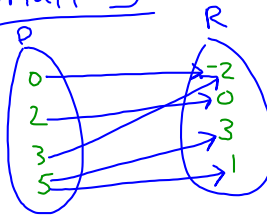
Range: The set of y 's (dependent)

EX) $\{(-1, 3), (-2, 1), (-3, -3), (-4, -5)\}$

Domain: $\{-1, -2, -3, -4\}$

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

Mapping



$\{(0, -2), (2, 0), (3, -2), (5, 3), (4, 3)\}$

Function: A special relation
each output has a unique
input.

Vertical Line Test (VLT): Pass a vertical line through the graph to check for repeated x -values



• Parallel Lines

Through (5, 8)
Point

$$y = 3x + 2$$

Point-Slope

$$(y - y_1) = m(x - x_1)$$

slope $y = 3x + _$

$$(y - 8) = 3(x - 5)$$

$$y - 8 = 3x - 15$$

$$y = 3x - 7$$

EX Parallel $y = -2x - 3$ thru (4, 0)

Slope (-2)

$$y - 0 = -2(x - 4)$$

$$y = -2x + 8$$

Perpendicular

slope: $\frac{1}{2}$

$$y - y_1 = m(x - x_1)$$

Point slope

thru (4, 0)

$$y - 0 = \frac{1}{2}(x - 4)$$

$$y = \frac{1}{2}x - 2$$