

February 8, 2017  
 \* no class on Friday

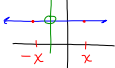
Feb 8-10:54 AM

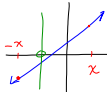
#3)  $y = 4x - 6$

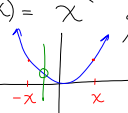
Input (x)  $4x - 6$   
(Line) Output (y)

Feb 8-11:12 AM

Functions

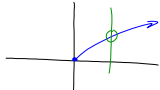
$f(x) = c$  Constant  
 Domain:  $(-\infty, \infty)$

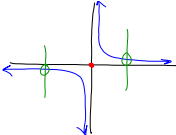
$f(x) = mx + b$  Linear  
 Domain:  $(-\infty, \infty)$

$f(x) = x^2$  Quadratic  
 D:  $(-\infty, \infty)$

Feb 8-11:16 AM

Functions with Restrictions

$f(x) = \sqrt{x}$  Square Root  
 test:  $x \geq 0$   
 D:  $[0, \infty)$  

$f(x) = \frac{1}{x}$  Rational  
 test:  $x = 0$ , then  $x \neq 0$   
 D:  $(-\infty, 0) \cup (0, \infty)$  

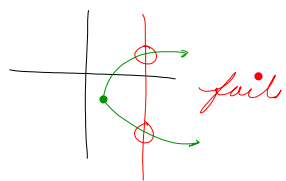
Feb 8-11:22 AM

$y = \sqrt{7x-4}$

test:  $7x-4 \geq 0$   
 $7x \geq 4$   
 $x \geq \frac{4}{7}$

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$\sqrt{y^2} = \sqrt{7x-4}$   
 $y = \pm \sqrt{7x-4}$



Feb 8-11:29 AM

#8)  $f(x) = \frac{x}{x^2+9} = 0$   $x^2 = -9$   
 $f(-x) = \frac{(-x)}{(-x)^2+9} = \frac{-x}{x^2+9}$   $x = \pm \sqrt{-9}$   
 $= \pm 3i$  *Imaginary*  
 $= -\frac{x}{x^2+9}$   
 $= -\frac{x}{x^2+9}$

Feb 8-11:34 AM

$$g(x) = \frac{x-2}{x+2=0}$$

$x = -2$

*So,  $x \neq -2$*

$D: (-\infty, -2) \cup (-2, \infty)$

$$g(-2) = \frac{(-2)-2}{(-2)+2}$$

$$= \frac{-4}{0}$$

Feb 8-11:40 AM

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

*test:  $x-2 \geq 0$*

*$x \geq 2$*

$D: [2, \infty)$

$$f(1) = \sqrt{(1)-2}$$

$$= \sqrt{-1}$$

*\*Not a Real Number*

Feb 8-11:42 AM

Difference Quotient

$$\frac{f(x+h) - f(x)}{h}$$

Feb 8-11:45 AM

Slope of Lines

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\Delta y}{\Delta x}$$

$$m = \frac{f(b) - f(a)}{b - a}$$

*avg. Rate of Change*

$$\frac{f(x+h) - f(x)}{h}$$

Feb 8-11:47 AM