

# 4.3

$$e^{5+9x} = e^{7+y}$$

$$e^{5+9x} = e^{x+3} e^4$$

$$5+9x = x+3$$

$$8x = -2$$

$$x = -2/8$$

$$x = -1/4$$

exponential is a 1-1 function  
have inverse

$$y = 3^x \quad \log_3 x = y$$

← exponent  
← argument  
+ base

Find domain of:

$$\log_6(4x-1) = y$$

$$4x-1 > 0$$

$$4x > 1$$

$$x > 1/4$$

$$\log_7 \frac{x+1}{x-2} = y$$

$$\frac{x+1}{x-2} > 0$$

find zeros  
 $x = -1$   $x = 2$   
 $(-\infty, -1) \cup (2, \infty)$

$$2^3 = 8 \text{ exponential} \quad \log_2(8) = 3 \text{ logarithmic}$$

$$\log_{16} \sqrt{6} = 1/2$$

$$15^{-1} = 1/15$$

$$\sqrt{6}^{1/2} = \sqrt{6}$$

$$\log_{15}(1/15) = -1$$

$$\log_{10} 1000 = 3$$

$$10^3 = 1000$$

$$\log_9 9 = 1$$

$$9^0 = 1$$

$$x = 1$$

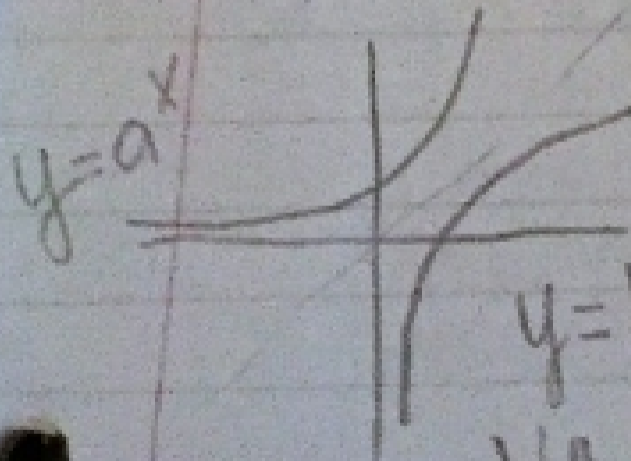
$$\log_{15} 15 = 1$$

$$15^1 = 15$$

$$x = 15$$

$$\log_{10} X = \log(X)$$

$$\log_e X = \ln(X)$$

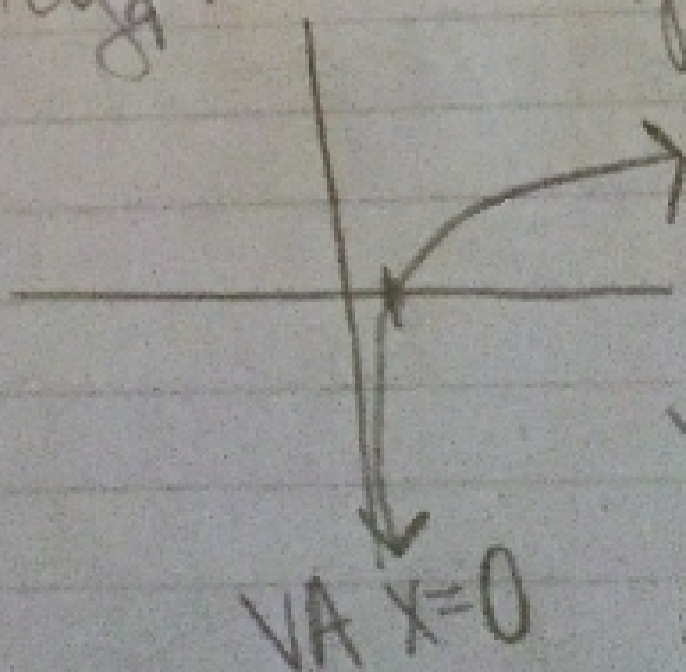


$$y = \log_a x$$

$$VA = x = 0$$

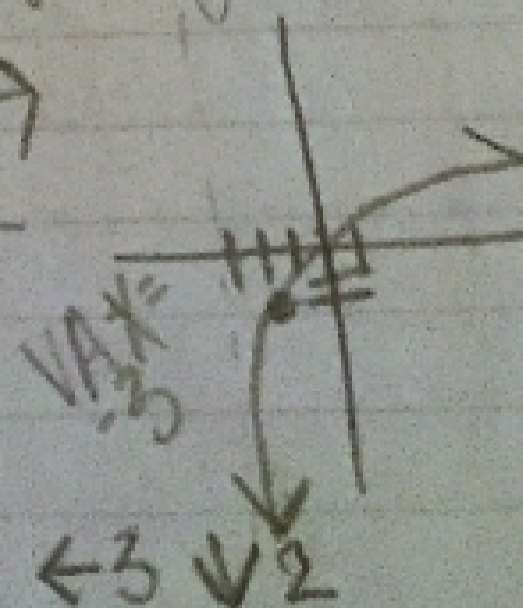
x intercept (1, 0)

$$y = \log_9 x$$



$$VA \ x = 0$$

$$y = \log_6(x+3)$$



$$VA \ x = -3$$

$$\leftarrow 3 \ \vee \ 2$$