

3.9

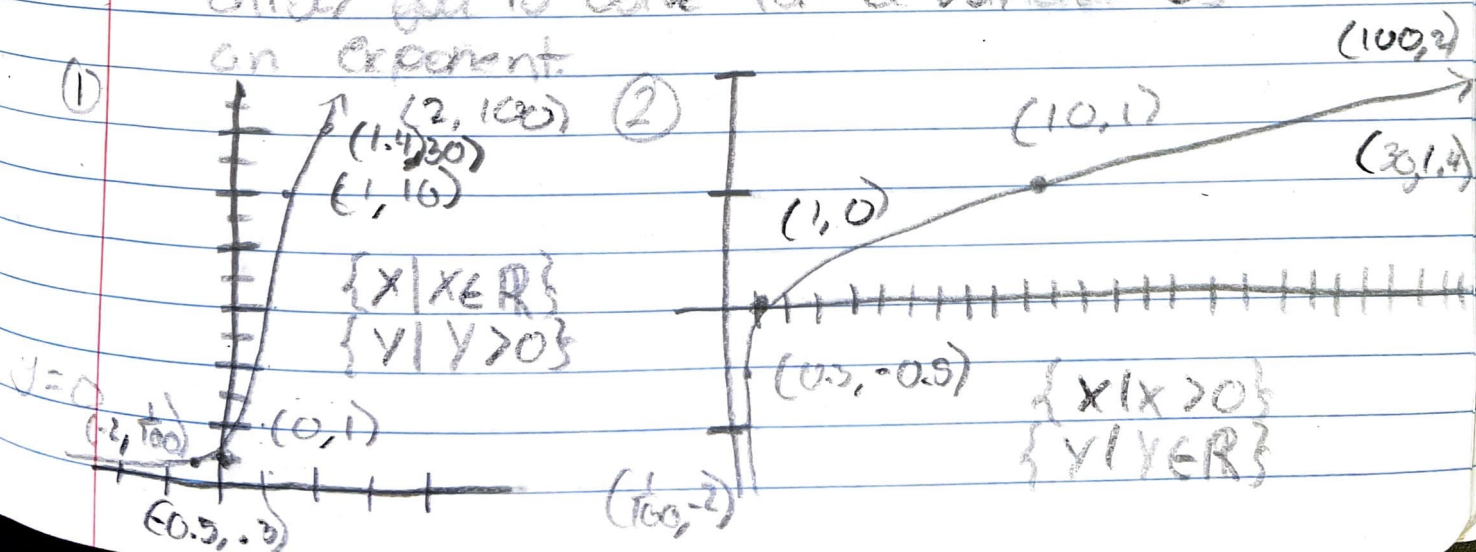
- ①
- a)  $4^3 = 64$
  - b)  $6^0 = 1$
  - c)  $10^4 = 10\,000$
  - d)  $\frac{1}{2}^{-3} = 8$

- ②
- a)  $\ln e = 1$
  - b)  $\log_{449} 1 = 0$
  - c)  $\log_{16} 4 = \frac{1}{2}$
  - d)  $\log_{64} 4 = \frac{1}{3}$

- ③
- a) 4
  - b) -3
  - c)  $2^5$
  - d) -2

## Logarithm Handout

Have you encountered logarithms before? Yes  
 What do you remember about them? They  
 allow you to solve for a variable as  
 on exponent.



- 3
- a) 1
  - b) 2
  - c) -2
  - d) 0
  - e) 1.5
  - f) -1.5

- 4
- a) 1.477
  - b) -0.523

5  $f(c) = a$

6  $\log(30) = 1.477$   
 $\log(0.3) = -0.523$

7  $10^a = c \Leftrightarrow \log c = b \Leftrightarrow \log_{10} c = b$

8  $b^a = c \Leftrightarrow \log_b c = a$

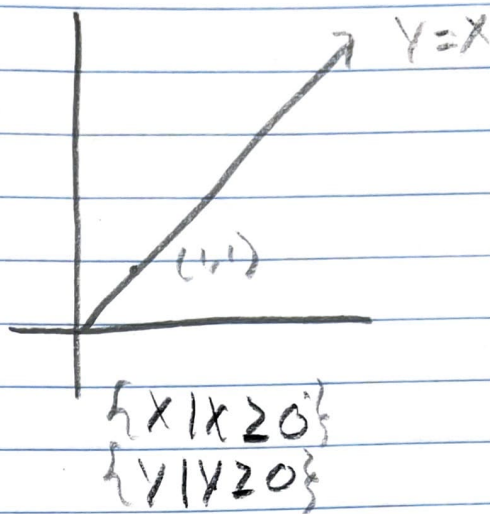
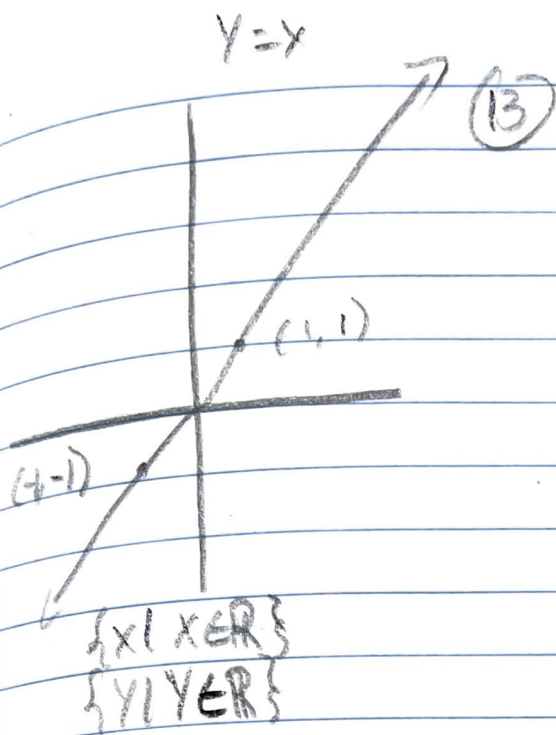
9 a)  $10^x = 20 \Rightarrow \log 20 = 1.301$

b)  $\log_5(x) = 3 \Rightarrow 5^3 = 125$

c)  $\log_{10}(x) = -3 \Rightarrow 10^{-3} = \frac{1}{1000} = 0.001$

10  $\log(10^{0.3}) = 0.3$   
 $10^{\log(30)} = 30$

(12)



(14)  $\log 10^x = y$

$\log 10^{\sqrt{x}^2} = y$

- (15)
- (a) 2
  - (b) -1
  - (c)  $\frac{1}{2}$
  - (d)  $x^2$