

$$y = \frac{4}{x}$$
$$x \neq 0$$

$$y = \sqrt{x}$$
$$x \geq 0$$

6.3 Logarithms

Exponential

$$2^3 = 8$$

base

exponent

$$2^5 = 32$$

$$6^2 = 36$$

$$5^3 = 125$$

$$3^4 = 81$$

$$y = b^x$$

$$b^x = y$$

Logarithmic

$$\log_2 8 = 3$$

$$\log_2 32 = 5$$

log base 2 of 32 is 5

$$\log_6 36 = 2$$

$$\log_5 125 = 3$$

$$\log_3 81 = 4$$

$$\log_b y = x$$

$$b^x = b^y \quad x = y$$

$$2^3 = 2^3$$

Base 10 Common Logarithms

$$10^2 = 100 \quad \log_{10} 100 = 2$$

$$10^3 = 1,000 \quad \log_{10} 1,000 = 3$$

$$10^4 = 10,000 \quad \log 10,000 = 4$$

$$10^{1.5} = 31.623$$

$$10^1 = 10$$

$$10^{1.5} =$$

$$10^2 = 100$$

$$\log 31.623 \approx 1.5$$

$$10^1 = 10$$

$$10^? = 72$$

$$10^2 = 100$$

$$\log_{10} 72 = 1.857$$

$$10^x = 214$$

$$\log 214 = x$$

$$x = 2.330$$

$$10^2 = 100$$

$$10^3 = 1,000$$

$$10^x = 920$$

$$\log 920 = x$$

$$10^{2.964}$$

$$2.964 = x$$

$$10 \wedge 2.964$$

$$4^{-2} = \frac{1}{4^2} = \frac{1}{16}$$

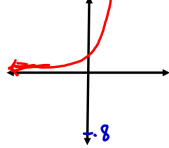
$$4^{-2} = \frac{1}{16} \quad \log_4 \frac{1}{16} = -2$$

$$9^{\frac{1}{2}} = 3 \quad \log_9 3 = \frac{1}{2}$$

$$\sqrt[3]{9}$$

$$\left(\frac{1}{3}\right)^4 = \frac{1}{81} \quad \log_{\frac{1}{3}} \frac{1}{81} = 4$$

$$2^x = -8 \quad \log_2 -8 = x$$



$$10^x = -100 \quad \log_{10} -100 = x$$

Solve for x

$$10^x = 42 \quad \log_{10} 42 = x$$

$$\log(42) \text{ enter}$$

$$1.623 = x$$

$$\log_2 8 = 3$$

$$8 \log 2 = 3$$

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12-23 ^{13.} $5^4 = 625$ $\log_5 625 = 4$

24-35 ²⁵ $10^3 = 1000$ $\log_{10} 1000 = 3$

36-42.

37. $\log_{10} 79$ 1 - 2

44-54

$10^x = 121$ $\log_{10} 121 = x$

Calc $\log(121)$

2.083