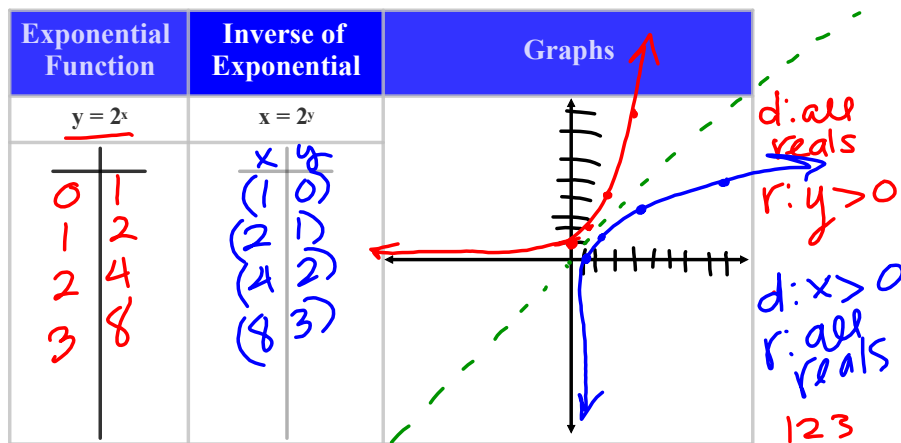


7-3A Logarithms & Logarithmic Functions

- write logarithmic function in exponential form
- write exponential logarithmic functions in logarithmic form
- F.IF.7.e, F.BF.3



- In the inverse function, $x = 2^y$, y is called the logarithm of x .
- $y = \log_b x$ reads " y equals log base b of x ."

$\log_b x$

$\log_2 8 \neq \log 28$
 $2^3 = 8$
 $10^1 = 10$
 $10^{1.447} = 28$
 $10^2 = 100$

Logarithm with base b

$$x = b^y$$

$$\log_b x = y \text{ IFF } x = b^y$$

Write each exponential function as a logarithm.

1. $5^3 = 125$

$\log_5 125 = 3$

2. $27^{1/3} = 3$

$\log_{27} 3 = \frac{1}{3}$
 $27^0 = 1$
 $27^1 = 27$
 $27^{1/3} = \sqrt[3]{27}$

3. $2^4 = 16$

$\log_2 16 = 4$

Write each logarithm as an exponential.

4. $\log_3 9 = 2$

$9 = 3^2$

5. $\log_{10} \frac{1}{100} = -2$

$\frac{1}{100} = 10^{-2}$

6. $\log_2 32 = 5$

$32 = 2^5$

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