Happy Wednesday!

- Please place cell phones in holder.

-Remember test moved to Monday!

Finding the Inverse

Of An Exponential Function

1. Switch x and y
2. Solve for the base
3. Covert to a log
4. Solve for y

Example 1 $y = 2^{x-3} + 4$

$x = 2^{y-3} + 4$

$x - 4 = 2^{y-3}$

$\log_2(x-4) = y-3$

$\log_2(x-4)+3 = y^{-1}$

Example 2 $y = 3 \cdot 2^{2x-1}$

$\frac{1}{3}x$ $\quad x = 3 \cdot 2^{2y-1}$

$\frac{x}{3} = 2^{2y-1}$

$\log_2\left(\frac{x}{3}\right) = 2y-1$

$\log_2\left(\frac{x}{3}\right)+1 = 2y$

$\frac{1}{2}\log_2\left(\frac{x}{3}\right)+\frac{1}{2} = y^{-1}$

$\frac{\log_2\left(\frac{x}{3}\right)+1}{2} = y^{-1}$

Of A Logarithmic Function

1. Switch x and y
2. Solve for the log
3. Covert to a exponential
4. Solve for y

Example 3 $y = \log_3(x-2)$

$x = \log_3(y-2)$

$3^x = y-2$

$3^x + 2 = y^{-1}$

Example 4 $y = 6\ln(3x)+4$

$x = 6\ln(3y)+4$

$x-4 = 6\ln(3y)$

$\frac{x-4}{6} = \ln(3y)$

$e^{\frac{x-4}{6}} = 3y$

$\frac{e^{\frac{x-4}{6}}}{3} = y^{-1}$

$\frac{1}{3} \cdot e^{\frac{x-4}{6}} = y^{-1}$

$y = \log_5 x^3$

$x = \log_5 y^3$

$X = 3\log_5 y$

$\frac{x}{3} = \log_5 y$

$y^{-1} = 5^{\frac{x}{3}}$

$5^{\frac{1}{3}x}$

$\sqrt[3]{5^x}$

$x = \log_5 y^3$

$5^x = y^3$

$\sqrt[3]{5^x} = y$

$5^x = y^6$

$\pm\sqrt[6]{5^x} = y^{-1}$