

#21 ~ Sect. 8.5: Exponential & Logarithmic Equations

Change of Base Formula:

$$\log_b M = \frac{\log_c M}{\log_c b}$$

for example:

$$\log_5 125 = \frac{\log 125}{\log 5}$$

Ex. 1: Use the change of base formula to evaluate $\log_6 12$.

Then convert $\log_6 12$ to a logarithm in base 3.

You can use the Change of Base Formula to solve an exponential equation. Take the logarithm of each side using the base of the exponent as the base for the logarithm . Then use the Change of Base Formula.

Ex. 2: Solve $5^{2x} = 16$.

Ex. 3: Solve $7^{5x} = 3000$.

Ex. 4: Solve $\log(2x - 2) = 4$.

Ex. 5: Solve $3 \log x - \log 2 = 5$.