

Name: _____

Date: _____

Learning Goal 8.1Solving exponential and logarithmic equations with same base and with different bases, including base e .**More Questions**

Power Law	Product Law	Quotient Law	Change of Base

1. Evaluate.

a. $\log_{36} 2 - \log_{36} 12$

b. $2 \log_3 6 - \frac{1}{2} \log_3 64 + \log_3 2$

2. Write as a single logarithm.

a. $\frac{n \log_a x}{\log_a y}$

b. $\frac{\log_6 64}{\log_6 4}$

3. Simplify by changing the base of the logarithm. Check using a calculator.

a. $\log_{125} 625$

b. $\log_8 32 + \log_{16} 2 - \log_2 4$

4. Simplify. State any restrictions on the variable.

$$\log_2(x^2 - 9) - \log_2(x^2 - x - 6)$$

5. Audiologists recommend hearing protection if the sound level in environment exceeds 85 dB. The sound level of a chainsaw is about 85 dB and the maximum level of a AirPods is about 110 dB. How times as intense is the sound of the media player, at the maximum volume, compared to the sound of a chainsaw?