

Properties of Logarithms

Product Property

$$\log_b m \cdot n = \log_b m + \log_b n$$

Power Property

$$\log_b m^x = x \cdot \log_b m$$

Quotient Property

$$\log_b \frac{m}{n} = \log_b m - \log_b n$$

Special Log Properties

$$\log_b b = 1 \quad \log_b 1 = 0$$

Inverse Properties

$$\log_b b^x = x \quad b^{\log_b x} = x$$

Product Property

$$\log_b m \cdot n = \log_b m + \log_b n$$

Quotient Property

$$\log_b \frac{m}{n} = \log_b m - \log_b n$$

Power Property

$$\log_b m^x = x \cdot \log_b m$$

Expand the following logarithmic expressions

$$\log_4 \frac{3x^2}{7y^4}$$

Product Property

$$\log_b m \cdot n = \log_b m + \log_b n$$

Quotient Property

$$\log_b \frac{m}{n} = \log_b m - \log_b n$$

Power Property

$$\log_b m^x = x \cdot \log_b m$$

Expand the following logarithmic expressions

$$\log_5 \left[\frac{(x+4)^2}{2(x-3)^3} \right]$$

Product Property

$$\log_b m \cdot n = \log_b m + \log_b n$$

Quotient Property

$$\log_b \frac{m}{n} = \log_b m - \log_b n$$

Power Property

$$\log_b m^x = x \cdot \log_b m$$

Expand the following logarithmic expressions

$$\ln \frac{x^4 \sqrt{4-x}}{(x+3)(x+1)^2}$$

Product Property

$$\log_b m \cdot n = \log_b m + \log_b n$$

Quotient Property

$$\log_b \frac{m}{n} = \log_b m - \log_b n$$

Power Property

$$\log_b m^x = x \cdot \log_b m$$

Expand the following logarithmic expressions

$$\log_5 \left[\frac{x^4}{x^2 - 1} \right]^3$$

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