

Logarithmic & Exponential Worksheets

Expand each logarithm.

$$\log_5 \sqrt{xyz} =$$

$$\log_3 \sqrt{6x^5} =$$

$$\log_2 \left(z \sqrt[3]{xy} \right) =$$

$$\log_4 \left(\frac{x^5}{\sqrt{y}} \right) =$$

$$\log_b \left(\frac{6\sqrt{x}}{y} \right) =$$

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Expand each logarithm.

$$\log_5 \sqrt{xyz} = \frac{1}{2} \log_5 x + \frac{1}{2} \log_5 y + \frac{1}{2} \log_5 z$$

$$\log_3 \sqrt{6x^5} = \frac{1}{2} \log_3 6 + \frac{5}{2} \log_3 x$$

$$\log_2 \left(z \sqrt[3]{xy} \right) = \log_2 z + \frac{1}{3} \log_2 x + \frac{1}{3} \log_2 y$$

$$\log_4 \left(\frac{x^5}{\sqrt{y}} \right) = 5 \log_4 x - \frac{1}{2} \log_4 y$$

$$\log_b \left(\frac{6\sqrt{x}}{y} \right) = \log_b 6 + \frac{1}{2} \log_b x - \log_b y$$

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