More Logarithms

Example Problems

April 21, 2020

Problem 1: Expanding Logarithms

Expand the logarithm fully using the properties of logs. Express the final answer in terms of log x and log y.

$$log \frac{4x^2}{y^5}$$

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$$log\frac{4x^2}{y^5}$$

$$=$$

$$log4 + logx^2 - logy^5$$

Problem 1: Expanding Logarithms

Expand the logarithm fully using the properties of logs. Express the final answer in terms of log x and log y.

$$log4 + logx^2 - logy^5$$

$$=$$

$$log4 + 2logx - 5logy$$

Problem 2: Expanding Logarithms

Find the numerical value of the log expression.

$$\log a = 3$$
$$\log b = 4$$
$$\log c = 5$$
$$\log c^4 b^5 \sqrt[4]{a^5}$$

Problem 2: Expanding Logarithms

find the numerical value of the log expression.

$$log c^4 b^5 \sqrt[4]{a^5}$$

$$=$$

$$log c^4 + log b^5 + log a^{5/4}$$

Problem 2: Expanding Logarithms

Find the numerical value of the log expression.

$$log c^4 + log b^5 + log a^{5/4}$$

$$=$$

$$4 log c + 5 log b + \frac{5}{4} log a$$

Problem 2: Expanding Logarithms

Find the numerical value of the log expression.

$$4logc + 5logb + \frac{5}{4}loga$$

$$=$$

$$4(5) + 5(4) + \frac{5}{4}(3)$$

Problem 2: Expanding Logarithms

Find the numerical value of the log expression.

$$20 + 20 + \frac{15}{4}$$

$$=$$

$$\frac{175}{4}$$

Problem 3: Logarithmic Form

Solve for the positive solution of x.

$$log_x \frac{1}{5} = \frac{1}{4}$$

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Solve for the positive solution of x.

$$log_x \frac{1}{5} = \frac{1}{4}$$

$$=$$

$$x^{1/4} = \frac{1}{5}$$

Problem 3: Logarithmic Form

Solve for the positive solution of x.

$$x^{1/4} = \frac{1}{5}$$

$$=$$

$$x^{1/4^{-4}} = \frac{1}{5}^{-4}$$

Problem 3: Logarithmic Form

Solve for the positive solution of x.

$$x^{1/4^{-4}} = \frac{1}{5}^{-4}$$

$$=$$

$$x = 5^4$$

Problem 3: Logarithmic Form

Solve for the positive solution of x.

$$x = 5^4$$
$$=$$
$$625$$

Congrats!

I hope you learned something and enjoyed this video!