

What am I learning today?

Warm-Up

Expand the following logarithms:

1. $\log\left(\frac{xy^5}{z}\right)$

2. $\log_6(\sqrt{xy})$

Condense the following logarithms:

3. $2\log_9 x - 5\log_9 y$

4. $\ln x + \ln y + \frac{1}{2}\ln z$

Recall

Remember, to SOLVE A LOGARITHM:

1. Get the logarithm by itself.
2. Rewrite the logarithm as an _____.
3. Evaluate with a calculator.
4. Solve.

Recall: Solve the following logarithms.

a. $14 - 6\ln x = 20$

b. $2\log 3x = 4$

Solving Other Types of Logarithms

Type 1

log=#

Type 1: log=# (CONDENSING NEEDED)

1. Condense the logarithm to a single logarithm.
2. Rewrite as an exponential
3. Evaluate w/ a calculator.
4. Solve.

Examples:

a. $\ln 3 + \ln(-4x) = 2$

b. $\log_3 5x - \log_3 5 = 4$

Solving Other Types of Logarithms

Type 2
log=log

Type 2: log=log (NO CONDENSING)

1. Both sides need the SAME BASE with only _____.
2. Cancel the logs - set expressions equal
3. Solve.

a. $\log_7(5x - 1) = \log_7(x + 7)$

b. $\ln(x + 1) = \ln(-2x - 8)$

Solving Other Types of Logarithms

Type 3
log=log

Type 3: log=log (CONDENSING REQUIRED)

1. Condense if needed.
2. Both sides need the SAME BASE with only _____.
3. Cancel the logs - set expressions equal
4. Solve.

Examples:

a. $\ln x - \ln 9 = \ln 3$

b. $\log 2 + \log(x - 3) = \log 8$

You Try

ALL Types

1. $\log_3(x + 4) - \log_3 2 = \log_3 24$

2. $\ln 3 + \ln(-4x) = 2$

3. $\log(x + 5) + \log 8 = 1$

4. $\log_5(-x + 9) = \log_5(13x - 19)$

Summary

Summarize the lesson in your own words