Bellwork

If: $\log x = 4$ and $\log y = 9$

Then what is $\log(x^5y^3)$?
Homework Answers

• See Dukane
Unit 3 Homework Quiz 2

1. Evaluate using a calculator. \( \log_4 19 \)

2. Solve for \( x \). \( 3^{2x-12} = 9^{4x} \)

3. Expand. a) \( \ln x^2 y \) b) \( \log \left( \frac{3x}{y} \right)^4 \)

4. Condense. a) \( 2 \ln a - 3 \ln b \) b) \( 4 \log_2 x + \log_2 y \)

5. Solve for \( x \). Round your answer to 3 decimal places.
   a) \( 4^{3x} = 11 \) b) \( 2e^{x-1} + 6 = 12 \)
Unit 3 Homework Quiz 2 Retake

1. Evaluate using a calculator. \[ \log_6 11 \]

2. Solve for x. \[ 4^{x-4} = 8^{2x} \]

3. Expand. a) \[ \ln x \sqrt{y} \] b) \[ \log \left( \frac{x}{y^2} \right)^5 \]

4. Condense. a) \[ 4 \ln x - 2 \ln y \] b) \[ \log_2 m + \frac{1}{2} \log_2 n \]

5. Solve for x. Round your answer to 3 decimal places.
   a) \[ 2^{5x} = 15 \] b) \[ 4e^{x+4} - 5 = 9 \]
Unit 3
Exponential and Logarithmic Functions

Section 3.4:
Solving Equations

Objective: Students will be able to solve exponential and logarithmic equations.
Solve the logarithmic equation algebraically. Round your result to three decimal places.

\[ \log_3 x = 2.5 \quad \text{and} \quad 2 \log_6 3x = 4 \]
Solve the logarithmic equation algebraically. Round your result to three decimal places.

\[ 6 + 2 \log_5 x = 12 \]
Solve for x

\[ 2 \ln 5x = 8 \quad \quad 5 + 2 \ln x = 4 \]
Solve for $x$

$6 + 4 \ln(x - 1) = 14$
Solve the logarithmic equation algebraically. Round your result to three decimal places.

Ex. 5

\[ \log_2(x + 6) + \log_2 x = 4 \]
Solve the logarithmic equation algebraically. Round your result to three decimal places.

\[
\log_3(x - 3) - \log_3(x - 5) = 1
\]
Solve the logarithmic equation algebraically. Round your result to three decimal places.

\[ \ln x - \ln 3 = 1 \]
Condense and solve

\[ \log_8 x + \log_8 x = 2 \]
Solve the logarithmic equation algebraically.
Round your result to three decimal places.

\[ \log_5 x + \log_5 4 = \log_5 16 \]
Summary...

What should you do when the variable is inside the log?

Guided Practice...DO THIS RIGHT NOW!!

If: \( \log_3 a = 3 \) and \( \log_3 c = 7 \)

Then what is \( \log_3 \left( a^3 c^2 \right) \)
Homework

3.4 worksheet day 2

1-13, 16, 17, 19, 20
Condense and solve

\[ \log_4 x + \log_4 6 = \log_4 12 \]
Condense and solve

$2 \log_2 x - \log_2 5 = \log_2 125$
Condense and solve

\[ \log_8 x + \log_8 x = \log_8 81 \]