Hon Alg 2 Bellwork Tuesday, May 2, 2017

Power Rule	Product Rule	Quotient Rule
$\text{Log}_a x^b = b\text{Log}_a x$	$\text{Log}_a MN = \text{Log}_a M + \text{Log}_a N$	$\text{Log}_a \frac{M}{N} = \text{Log}_a M - \text{log}_a N$

Use the three properties of logarithms to expand each logarithms into several logarithms.

1. $\log(W^5X^3)$
2. $\ln\frac{C^5}{\sqrt{D^3}}$
3. $\log_3(\frac{K}{M^5N^4})$

Use the three properties of logarithms to write each as a single logarithm.

4. $2\log_4 A - \log_4 B + 5\log_4 C$
5. $-3\log Q + 6\log R - 7\log T$

6. Write as a single logarithm and evaluate.

$3\log_9 2 + \frac{1}{2}\log_9 36 - 2\log_9 4$

Hon Alg 2 Bellwork Tuesday, May 2, 2017 Answers

Power Rule	Product Rule	Quotient Rule
$\text{Log}_a x^b = b\text{Log}_a x$	$\text{Log}_a MN = \text{Log}_a M + \text{Log}_a N$	$\text{Log}_a \frac{M}{N} = \text{Log}_a M - \text{log}_a N$

Use the three properties of logarithms to expand each logarithms into several logarithms.

1. $\log(W^5X^3)$ $5\log W + 3\log X$
2. $\ln\frac{C^5}{\sqrt{D^3}}$ $5\ln C - \frac{3}{2}\ln D$
3. $\log_3(\frac{K}{M^5N^4})$ $\log_3 K - 5\log_3 M - 4\log_3 N$

Use the three properties of logarithms to write each as a single logarithm.

4. $2\log_4 A - \log_4 B + 5\log_4 C$ $\log_4 \frac{A^2C^5}{B}$
5. $-3\log Q + 6\log R - 7\log T$ $\log \frac{R^6}{Q^3T^7}$

6. Write as a single logarithm and evaluate.

$3\log_9 2 + \frac{1}{2}\log_9 36 - 2\log_9 4$

$\log_9 \frac{2^3 \cdot \sqrt{36}}{4^2} = \log_9 \frac{8 \cdot 6}{16} = \log_9 \frac{48}{16}$

$= \log_9 3 = \frac{1}{2}$

$\hookrightarrow 9^x = 3$