Using Logarithmic Properties to Expand and Condense Algebraic Expressions

We're Bruyn Math

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Putting the Fun in the Fundamentals of Math

Logarithms – Using Properties to Expand and Condense

Write the problem letter above the solution below to reveal a riddle and punch line.

Expand these logarithms using the properties of logarithmic functions.

A. $\log_b(x+4)^2$ =

C. $\log 10^{(x+4)}$ =

D. $\log_b 12x^2 - \log_b 2x$ =

E. $10^{\log 12x^2}$ =

F. $10^{\log 2x}$ =

H. $\log_b 2 + \log_b(x+4)$ =

I. $\log_b 2 - \log_b(x+4)$ =

K. $\log(x^4y^3)$ =

L. $\log\left(\frac{x^4}{y^3}\right)$ =

M. $\log\left(\frac{x}{y}\right)^4$ =

? $\log(x^3y^4)$ =

Condense these logarithms using the properties of logarithmic functions.

N. $\log(2x+3) - \log(5x-1)$ =

O. $\log(2x+3) + \log(5x-1)$ =

Q. $2\log(x+3) - 5\log(x-1)$ =

R. $2\log(x+3) + 5\log(x-1)$ =

S. $\log(5x-1) - \log(2x+3)$ =

T. $5\log(x+3) - 2\log(x-1)$ =

U. $5\log(x+3) + 2\log(x-1)$ =

W. $2\log(x-1) - 5\log(x+3)$ =

$\log\frac{(x-1)^2}{(x+3)^5}$ $\log_b 2(x+4)$ $2\log_b(x+4)$ $\log\frac{(x+3)^5}{(x-1)^2}$ $4\log x + 3\log y$ $\log_b\frac{2}{x+4}$ $\log\left(\frac{2x+3}{5x-1}\right)$ $\log_b 6x$

$\log(2x+3)(5x-1)$ $2x$ $4(\log x - \log y)$ $12x^2$ $2\log_b(x+4)$ $4\log x - 3\log y$ $\log\left(\frac{5x-1}{2x+3}\right)$

$\log_b 6x$ $\log(2x+3)(5x-1)$ $4(\log x - \log y)$ $2\log_b(x+4)$ $\log\frac{(x+3)^5}{(x-1)^2}$ $\log_b 2(x+4)$

$\log\frac{(x+3)^5}{(x-1)^2}$ $12x^2$ $2\log_b(x+4)$ $x+4$ $\log_b 2(x+4)$ $12x^2$ $\log(x+3)^2(x-1)^5$ $\log\left(\frac{5x-1}{2x+3}\right)$ $12x^2$

$2\log_b(x+4)$ $\log\frac{(x+3)^5}{(x-1)^2}$ $3\log x + 4\log y$ $\log\left(\frac{5x-1}{2x+3}\right)$ $\log\frac{(x+3)^2}{(x-1)^5}$ $\log(x+3)^5(x-1)^2$ $2\log_b(x+4)$

$\log(x+3)^2(x-1)^5$ $12x^2$ $4(\log x - \log y)$ $12x^2$ $2\log_b(x+4)$ $4\log x - 3\log y$ $\log\left(\frac{5x-1}{2x+3}\right)$

Logarithms – Using Properties to Expand and Condense

Write the problem letter above the solution below to reveal a riddle and punch line.

Expand these logarithms using the properties of logarithmic functions.

A. $\log_b(x+4)^2 = 2\log_b(x+4)$

C. $\log 10^{(x+4)} = x+4$

D. $\log_b 12x^2 - \log_b 2x = \log_b 6x$

E. $10^{\log 12x^2} = 12x^2$

F. $10^{\log 2x} = 2x$

H. $\log_b 2 + \log_b(x+4) = \log_b 2(x+4)$

I. $\log_b 2 - \log_b(x+4) = \log_b \frac{2}{x+4}$

K. $\log(x^4y^3) = 4\log x + 3\log y$

L. $\log(\frac{x^4}{y^3}) = 4\log x - 3\log y$

M. $\log(\frac{x}{y})^4 = 4(\log x - \log y)$

? $\log(x^3y^4) = 3\log x + 4\log y$

Condense these logarithms using the properties of logarithmic functions.

N. $\log(2x+3) - \log(5x-1) = \log(\frac{2x+3}{5x-1})$

O. $\log(2x+3) + \log(5x-1) = \log(2x+3)(5x-1)$

Q. $2\log(x+3) - 5\log(x-1) = \log\frac{(x+3)^2}{(x-1)^5}$

R. $2\log(x+3) + 5\log(x-1) = \log(x+3)^2(x-1)^5$

S. $\log(5x-1) - \log(2x+3) = \log(\frac{5x-1}{2x+3})$

T. $5\log(x+3) - 2\log(x-1) = \log\frac{(x+3)^5}{(x-1)^2}$

U. $5\log(x+3) + 2\log(x-1) = \log(x+3)^5(x-1)^2$

W. $2\log(x-1) - 5\log(x+3) = \log\frac{(x-1)^2}{(x+3)^5}$

W	H	A	T	K	I	N	D
$\log\frac{(x-1)^2}{(x+3)^5}$	$\log_b 2(x+4)$	$2\log_b(x+4)$	$\log\frac{(x+3)^5}{(x-1)^2}$	$4\log x+3\log y$	$\log_b\frac{2}{x+4}$	$\log(\frac{2x+3}{5x-1})$	$\log_b 6x$

O	F	M	E	A	L	S
$\log(2x+3)(5x-1)$	$2x$	$4(\log x-\log y)$	$12x^2$	$2\log_b(x+4)$	$4\log x-3\log y$	$\log(\frac{5x-1}{2x+3})$

D	O	M	A	T	H
$\log_b 6x$	$\log(2x+3)(5x-1)$	$4(\log x-\log y)$	$2\log_b(x+4)$	$\log\frac{(x+3)^5}{(x-1)^2}$	$\log_b 2(x+4)$

T	E	A	C	H	E	R	S	E
$\log\frac{(x+3)^5}{(x-1)^2}$	$12x^2$	$2\log_b(x+4)$	$x+4$	$\log_b 2(x+4)$	$12x^2$	$\log(x+3)^2(x-1)^5$	$\log(\frac{5x-1}{2x+3})$	$12x^2$

A	T	?	S	Q	U	A
$2\log_b(x+4)$	$\log\frac{(x+3)^5}{(x-1)^2}$	$3\log x+4\log y$	$\log(\frac{5x-1}{2x+3})$	$\log\frac{(x+3)^2}{(x-1)^5}$	$\log(x+3)^5(x-1)^2$	$2\log_b(x+4)$

R	E	M	E	A	L	S
$\log(x+3)^2(x-1)^5$	$12x^2$	$4(\log x-\log y)$	$12x^2$	$2\log_b(x+4)$	$4\log x-3\log y$	$\log(\frac{5x-1}{2x+3})$

What kind of meals do math teachers eat? Square meals