Name:

Date:

Properties of Logarithms

Expand each logarithm.

1) $\log_8(x.y.z^3) =$

2) $\log_7\left(\frac{x^2}{y}\right)^3 =$

3) $\log_4(6^3.11^4) =$

4) $\log_2(2^{11}.11.7^4) =$

5) $\log_2(u.v.w^2) =$

6) $\log_9(12^3.7)^8 =$

7) $\log_5\frac{x^6}{y^5} =$

8) $\log_5\frac{3^5}{7^8} =$

9) $\log_5(x.y)^6 =$

10) $\log(3.2^3) =$

11) $\log(5.3) =$

12) $\log(6.11) =$

13) $\log\left(\frac{9}{4}\right)^5 =$

14) $\log(7^2.8)^6 =$

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Name:

Date:

Properties of Logarithms

Answers

Expand each logarithm.

1) $\log_8(x.y.z^3) =$
$\log_8 x + \log_8 y + 3\log_8 z$

2) $\log_7\left(\frac{x^2}{y}\right)^3 =$
$6\log_7 x - 3\log_7 y$

3) $\log_4(6^3.11^4) =$
$3\log_4 6 + 4\log_4 11$

4) $\log_2(2^{11}.11.7^4) =$
$11\log_2 2 + \log_2 11 + 4\log_2 7$

5) $\log_2(u.v.w^2) =$
$\log_2 u + \log_2 v + 2\log_2 w$

6) $\log_9(12^3.7)^8 =$
$24\log_9 12 + 8\log_9 7$

7) $\log_5 \frac{x^6}{y^5} =$
$6\log_5 x - 5\log_5 y$

8) $\log_5 \frac{3^5}{7^8} =$
$5\log_5 3 - 8\log_5 7$

9) $\log_5(x.y)^6 =$
$6\log_5 x + 6\log_5 y$

10) $\log(3.2^3) =$
$\log 3 + 3\log 2$

11) $\log(5.3) =$
$\log 5 + \log 3$

12) $\log(6.11) =$
$\log 6 + \log 11$

13) $\log\left(\frac{9}{4}\right)^5 =$
$5\log 9 - 5\log 4$

14) $\log(7^2.8)^6 =$
$12\log 7 + 6\log 8$

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