

Unit 5 Day 5 Warm Up

Expand each logarithm.

1) $\log_7 (11\sqrt[3]{2 \cdot 5})$

2) $\log (3^4\sqrt{2})$

3) $\log_9 (a^5b^3)$

4) $\log_8 \left(\frac{a^5}{b}\right)^4$

Condense each expression to a single logarithm.

5) $18\log_9 a - 3\log_9 b$

6) $\frac{\log_3 u}{3} + \frac{\log_3 v}{3} + \frac{\log_3 w}{3}$

7) $\log 8 + \log 3 + 5\log 7$

8) $\log_3 x + \log_3 y + 6\log_3 z$

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Expand each logarithm.

1) $\log_7 (11\sqrt[3]{2 \cdot 5})$

$$\log_7 11 + \frac{\log_7 2}{3} + \frac{\log_7 5}{3}$$

2) $\log (3^4\sqrt{2})$

$$4\log 3 + \frac{\log 2}{2}$$

3) $\log_9 (a^5b^3)$

$$5\log_9 a + 3\log_9 b$$

4) $\log_8 \left(\frac{a^5}{b}\right)^4$

$$20\log_8 a - 4\log_8 b$$

Condense each expression to a single logarithm.

5) $18\log_9 a - 3\log_9 b$

$$\log_9 \frac{a^{18}}{b^3}$$

6) $\frac{\log_3 u}{3} + \frac{\log_3 v}{3} + \frac{\log_3 w}{3}$

$$\log_3 \sqrt[3]{wvu}$$

7) $\log 8 + \log 3 + 5\log 7$

$$\log (24 \cdot 7^5)$$

8) $\log_3 x + \log_3 y + 6\log_3 z$

$$\log_3 (yxz^6)$$