

9.5 CA - Properties of Logarithms

Expand each logarithm.

1) $\log_3 (u \cdot v)$

2) $\log_6 \sqrt[3]{u}$

3) $\log_4 \left(\frac{u}{v^2} \right)^2$

4) $\log_3 \sqrt{x \cdot y \cdot z}$

5) $\log_6 (d\sqrt{a \cdot b \cdot c})$

6) $\log_5 (ab^5 \cdot c^3)$

Condense each expression to a single logarithm.

7) $\log_9 u - \log_9 v$

8) $\frac{\log_9 u}{2}$

9) $2\log_3 a + 5\log_3 b$

10) $5\log_5 x - 6\log_5 y$

11) $12\log_5 w + 12\log_5 u - 6\log_5 v$

12) $\log_7 c + \log_7 d + \frac{\log_7 a}{3} + \frac{\log_7 b}{3}$

Use a calculator to approximate each to the nearest thousandth. Use "change of base" formula to show your work.

13) $\log_4 34$

14) $\log_6 33$

Answers to 9.5 CA - Properties of Logarithms (ID: 1)

1) $\log_3 u + \log_3 v$

2) $\frac{\log_6 u}{3}$

3) $2\log_4 u - 4\log_4 v$

4) $\frac{\log_3 x}{2} + \frac{\log_3 y}{2} + \frac{\log_3 z}{2}$

5) $\log_6 d + \frac{\log_6 a}{2} + \frac{\log_6 b}{2} + \frac{\log_6 c}{2}$

6) $\log_5 a + 5\log_5 b + 3\log_5 c$

7) $\log_9 \frac{u}{v}$

8) $\log_9 \sqrt{u}$

9) $\log_3 (b^5 a^2)$

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

11) $\log_5 \frac{w^{12} u^{12}}{v^6}$

12) $\log_7 (dc\sqrt[3]{ba})$

13) 2.544

14) 1.951