

Q4HW4 - All work on looseleaf.

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Evaluate each expression.

1) $\log_3 243$

2) $\log_4 \frac{1}{64}$

Rewrite each equation in exponential form.

3) $\log_{144} 12 = \frac{1}{2}$

4) $\log_{16} 256 = 2$

Rewrite each equation in logarithmic form.

5) $9^{-2} = \frac{1}{81}$

6) $5^4 = 625$

Solve each equation.

7) $\log_{17} 3x = \log_{17} (4x - 2)$

8) $\log_{20} 5n = \log_{20} (-4n + 2)$

9) $5^{-2n-2} = 25$

10) $3^{3n} = \frac{1}{9}$

11) $5^{-3x} = 625$

12) $5^{-2v-3} = 125$

13) $16^{3-3x} = \frac{1}{4}$

14) $4^{-3n} = \frac{1}{64}$

Simplify. Write "undefined" for expressions that are undefined.

15) $\begin{bmatrix} -3 \\ 1 \end{bmatrix} + \begin{bmatrix} -2 & -1 \\ -1 & 5 \end{bmatrix}$

16) $\begin{bmatrix} -4 \\ 5 \end{bmatrix} - \begin{bmatrix} 5 \\ 5 \end{bmatrix}$

17) $\begin{bmatrix} 1 & 0 \\ -6 & 6 \end{bmatrix} \cdot \begin{bmatrix} 0 & -4 & -4 \\ 1 & 4 & 1 \end{bmatrix}$

18) $\begin{bmatrix} -2 & -6 \\ 0 & 0 \\ -1 & -5 \end{bmatrix} \cdot \begin{bmatrix} 6 & 4 \\ -1 & -6 \end{bmatrix}$

Evaluate each determinant.

19) $\begin{vmatrix} -1 & 4 \\ 2 & 4 \end{vmatrix}$

20) $\begin{vmatrix} 2 & -5 \\ 2 & 0 \end{vmatrix}$

Write each expression in exponential form.

21) $(\sqrt[6]{a})^5$

22) $(\sqrt[3]{7k})^5$

Simplify. Your answer should contain only positive exponents with no fractional exponents in the denominator.

23) $3n^{\frac{3}{2}} \cdot 3n^{-\frac{1}{3}} \cdot 3n^{\frac{1}{2}}$

24) $\left(x^{-\frac{3}{2}}\right)^{\frac{4}{3}}$

25) $\frac{3n^{\frac{1}{2}}}{2n}$

26) $\frac{2x^0}{2x^{\frac{2}{3}}}$