Use exponent rules to evaluate:

1. 9^2 2. 3^{-2} 3. $\left(\frac{64}{27}\right)^{1/3}$ 4. $\left(\frac{36}{49}\right)^{1/2}$ 5. $\left(\frac{2}{3}\right)^{-4}$

81 $\frac{1}{9}$ $\frac{4}{3}$ $\frac{6}{7}$ $\frac{81}{16}$

Evaluate the logarithmic expressions below:

6. $\log_2 \frac{1}{32} = \underline{-5}$ 7. $\log_4 64 = \underline{3}$ 8. $\log_{36} 6 = \underline{\frac{1}{2}}$

Use the properties of logarithms to condense the expression (evaluate if possible)

9. $\log_2(6) + \log_2(8) - \log_2 3$ $\underline{\quad 4 \quad}$

$\log_2 (6 \cdot 8) - \log_2 3$ $\log_2\left(\frac{48}{3}\right)$

$\log_2 (16)$

10. $\ln(x) - 3\ln(x) + 8\ln(x)$ $\underline{\ln x^6}$

$\ln\left(\frac{x}{x^3}\right) + \ln x^8$ $\ln\left(\frac{1}{x^2} \cdot x^8\right)$

$\boxed{\ln x^6}$

Use the properties of logarithms to fully expand the expression.

10. $\log x^2 y^5$ $2 \log x + 5 \log y$

11. $\log \frac{y}{x^3}$ $\log y - 3 \log x$