

# Math 1513 - College Algebra

## Discussion Board Week 6 - Due 2019.10.06

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Use properties of logarithms to write each expression as a single term. Please explain each simplification in terms of properties of logarithms. Do not do more than one property per step.

- $2\log(x) - \frac{1}{2}\log(x^2 + 1) + \log(2x - 1)$
- $2\log(x) - \frac{2}{3}\log(x^2 - 1) - \log(\sqrt{2x - 1})$
- $\ln(x) + \frac{2}{3}\ln(x^2 - 1) + \ln(\sqrt{2x - 1})$
- $\ln(x + 1) + \ln(x^2 - 1) - \frac{1}{3}\ln(\sqrt{2x - 1})$
- $4\log(x + 1) + \log(2x - 7) + \frac{2}{3}\log(4x + 2) - \log(\sqrt{2x})$
- $-2\log_3(x - 2) + \frac{2}{3}\log_3(x^2 - 1) - \log_3(\sqrt{2x})$
- $-6\ln(x) + \frac{2}{3}\ln(x^2 + 1) - \ln((2x - 1)^2)$
- $\log(x + 1) + \frac{5}{2}\log(x^3 + 1) - \frac{1}{3}\log(2x + 1)$
- $\log(2x - 1) + \frac{1}{3}\log(2x + 1) - \log(\sqrt{2x - 1})$
- $2\ln(x + 1) - \frac{2}{3}\ln(x^2 - 1) - \ln(\sqrt{2x - 1})$
- $\ln(x + 1) + 3\ln(x^2 - 1) + 2\ln(\sqrt{2x - 1})$
- $\log((x + 1)^4) + \frac{1}{2}\log(2x + 7) - \frac{1}{3}\log(4x + 2)$
- $-2\log_3(x + 2) - \frac{1}{3}\log_3(x^2 + 1) + \frac{1}{2}\log_3(\sqrt{2x})$
- $-6\ln(x) - \frac{2}{3}\ln(x^2 + 1) + \frac{1}{3}\ln((2x + 1)^2)$
- $3\log(5x + 1) + \frac{1}{3}\log(x^3 + x) - 3\log(2x - 1)$
- $-2\log(x) + \frac{5}{3}\log(x^2 + 1) + 2\log(\sqrt{2x - 1})$
- $\ln(x^2) - \frac{1}{3}\ln(3x^2) + \frac{1}{2}\ln(\sqrt{x})$
- $\ln(x^3 + 1) - \frac{1}{2}\ln(x^2 - x) - \frac{3}{2}\ln(\sqrt{2x})$
- $4\log(x^3) + 4\log(2x - 7) - \frac{2}{3}\log(4x + 2) - \log(\sqrt{2x})$
- $-2\log_3(x^2) + \frac{2}{5}\log_3(x^2 + 6) - 3\log_3(5 - x)$
- $4\ln(x + 1) + \frac{2}{3}\ln(x^3 + 1) + 2\ln((2x + 1)^2)$
- $\log(x^2 - 1) - \frac{3}{2}\log(x^2 + 1) + 2\log(2x^2 - 1)$
- $3\log(x - 1) + \frac{1}{3}\log(x^2 - 1) + 5\log(3x + 2)$
- $2\ln(x^3 - 1) - \frac{1}{3}\ln(x^3 + 1) - 3\ln(x)$
- $2\ln(\sqrt{x + 1}) + 3\ln(x^3 - 1) + \frac{3}{2}\ln(\sqrt{2x + 1})$