

Properties of Logs

AAT

expanding

write as one log

1. $\frac{1}{2} \log x + 3 \log(x+1)$

$\log x^{1/2} + \log(x+1)^3$

$\log(x^{1/2}(x+1)^3)$

2. $2 \ln(x+2) - \ln x$

$\ln(x+2)^2 - \ln x$

$\ln\left(\frac{(x+2)^2}{x}\right)$

3. $\frac{1}{3} (\log_2 x + \log_2(x+1))$

$\frac{1}{3} (\log_2(x(x+1)))$

$\log_2(x(x+1))^{1/3}$

Solve w/o a calculator

4. $\log_5 \sqrt[3]{5}$

$\log_5 5^{1/3}$

$\frac{1}{3} \log_5 5$

$\frac{1}{3} (1) = \boxed{1/3}$

5. $\ln e^4 - \ln e^2$

$\ln e^4/e^2$

$\ln e^4 = \boxed{4}$