11.5 Common Logs

Logarithms w/ base 10 are called common logarithms

Ex. $\log 1000 = 3$ since $1000 = 10^3$

$\log x = y \longrightarrow 10^y = x$

$\log 100 = 2 \longrightarrow 10^2 = 100$

Evaluate

$\log 3 (5)^3$

$\log 3 + 3 \log 5$

≈ 2.5740

Ex $\log \frac{13^3}{7}$

$3 \log 13 - \log 7 \approx 2.4967$

$\log_a n = \frac{\log_b n}{\log_b a}$

Ex $\log_8 172 = \frac{\log 172}{\log 8} \approx 2.4754$

Ex $5^{4x} = 73$

$\log 5^{4x} = \log 73$

$\frac{4x \log 5}{\log 5} = \frac{\log 73}{\log 5}$

$\frac{4x}{4} = \frac{\log 73}{\log 5} / 4$

$x \approx .6665$