

Logs and Exponents review

April 26, 2013

1. Solve for x

(a) $3^x = 27$

(b) $4^{\ln x} = 1$

(c) $\ln(x^2) = 2 \ln(3)$

(d) $\text{Log}_2(4^x) = 6$ (remember $4 = 2^2$)

(e) $\text{Log}_3(x) + \text{Log}_3(x + 1) = \text{Log}_3(2) + 1$

(f) $\int_2^x \frac{2u \, du}{u^2 + 1} = 0$

2. Evaluate

(a) $\text{Log}_2(16)$

(b) $\frac{d}{dx} \ln(\sin x)$

(c) $\int \tan x \, dx$

(d) $\frac{d}{dx} 5^{3x^2}$

(e) $\int_{-1}^1 (3x^2 - 1)e^{x^3 - x} \, dx$

(f) $\frac{d}{dx} \int_1^{e^x + 1} (\ln(t - 1) + 4) \, dt$