

SOLUTION #7 (8 AM)

Solution 1. (1) $b^0 = 1$

(2) $\log_b 1 = 0$

(3) $\log_b (b^n) = n$

(4) $\log_3 \sqrt{3} = \frac{1}{2}$

(5) $\frac{\ln 9}{\ln 3} = \frac{3 \ln 3}{\ln 3} = 2$

(6) $16^{\frac{3}{4}} = (2^4)^{\frac{3}{4}} = 2^3 = 8$

Solution 2. $2 \times 1000 = 1000 \times e^{.05t}$ (1pt)

$\implies 2 = e^{.05t} \implies \ln 2 = .05t$

$\implies t = \frac{\ln 2}{.05} = 20 \ln 2$ (1pt)

Solution 3. (1) $f'(x) = e^{2x+x^2}(2x+x^2)' = e^{2x+x^2}(2+2x)$

(2) $g'(x) = \frac{(x^2+1)'}{x^2+1} = \frac{2x}{x^2+1}$