

1. Write the following as a single logarithm: $\log(t+1)^3 - \log\sqrt{x+3} - \log(2-x)^{2/3}$

2. Solve these equations.

a. $\ln(4 - 2x) = -4$

b. $5^{-2x} = 3$

c. $\log(x+1) - \log(x) = -1$

3. Simplify the expression: $e^{5\ln(x)+2\ln(y)}$

4. A sky diver's velocity is given by $v(t) = 180(1 - e^{-0.2t})$. The units are in ft/sec. The velocity increases rapidly at first and then more slowly as the air resistance increases.

Find $v(0)$, $v(5)$ and $v(10)$.

Graph the function.

Find the maximum value of $v(t)$. This is known as the terminal (hopefully not the truly terminal) velocity of the diver.