

Exponential and Logs - Review

Using Log Properties:

Expand:

$$\ln\left(\frac{x^4\sqrt{y}}{z^5}\right)$$

$$4\ln(x) + \frac{1}{2}\ln(y) - 5\ln(z)$$

Solve for x:

$$2\log(x) = \log(3) + \log(2x - 3)$$

$$\log x^2 = \log(6x - 9)$$

$$x^2 = 6x - 9$$

$$\boxed{x=3}$$

$$x^2 - 6x + 9 = 0 \quad (x-3)(x-3) = 0$$

$$32 + e^{7x} = 46$$

$$e^{7x} = 14$$

$$7x \cdot \ln(e) = \ln(14)$$

$$x = 0.377$$

$$\ln(2x + 5) = 3$$

$$2x + 5 = e^3$$

$$2x + 5 = 20.085$$

$$\boxed{x=7.54}$$

Condense:

$$\log_3 5x^4 + \log_3 2x^3 - \log_3 30x^2$$

$$\log_3(10x^7) - \log_3(30x^2)$$

$$\log_3\left(\frac{10x^7}{30x^2}\right) = \log_3\left(\frac{x^5}{3}\right)$$

$$\log(x) + \log(x + 15) = 2$$

$$\log(x^2 + 15x) = 2$$

$$x^2 + 15x = 10^2$$

$$x^2 + 15x - 100 = 0$$

$$(x+20)(x-5) = 0$$

$$3^{x+4} = 6$$

$$(x+4)\log(3) = \log(6)$$

$$x+4 = 1.6309$$

$$\boxed{x=2.369}$$

$$x = -20$$

$$\boxed{x=5}$$

only

$$1000e^{.25t} = 2400$$

$$e^{.25t} = 2.4$$

$$.25t = \ln(2.4)$$

$$\boxed{t=3.5}$$

Evaluate the following logarithms:

$$\log_2 32$$

$$5$$

$$\log 1000$$

$$3$$

$$\ln \sqrt{e^7}$$

$$\frac{7}{2}$$

$$\log_3 \frac{1}{81}$$

$$-4$$

$$\log_{64} 8$$

$$\frac{1}{2}$$