

Sec 8-6: Natural Logarithms

Solve each to the nearest hundredth.

$$4e^{x-2} + 7 = 12$$

$$\begin{array}{cc} -7 & -7 \end{array}$$

$$\frac{4e^{x-2}}{4} = \frac{5}{4}$$

$$e^{x-2} = 1.25$$

$$\ln 1.25 = x - 2$$

$$x = \ln 1.25 + 2$$

$$x = 2.22$$

$$\frac{5 \ln(4x+1)}{5} = \frac{7.2}{5}$$

$$\ln(4x+1) = 1.44$$

$$e^{1.44} = 4x+1$$

$$x = \frac{e^{1.44} - 1}{4} = 0.81$$

$$\ln \frac{2x+3}{5} = 6$$

$$5e^6 = \frac{2x+3}{5} \cdot 5$$

$$5e^6 = 2x+3$$

$$x = \frac{5e^6 - 3}{2} = 1007.07$$

$$\frac{3 \ln 4x^2}{3} = \frac{5}{3}$$

$$\ln 4x^2 = 5/3$$

$$e^{5/3} = 4x^2$$

$$\frac{e^{5/3}}{4} = x^2$$

$$x = \pm \sqrt{\frac{e^{5/3}}{4}} = \pm 1.15$$

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

$$\ln \frac{x-3}{5} = 2$$

$$5e^2 = \frac{x-3}{5} \cdot 5$$

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

$$x = 5e^2 + 3 = 39.45$$

$$\ln 5x + 2 \ln x = 7$$

$$\ln(5x \cdot x) = 7$$

$$\frac{e^7}{5} = \frac{5x^2}{5}$$

$$\sqrt{\frac{e^7}{5}} = \sqrt{x^2} \Rightarrow x = \pm 6.03$$