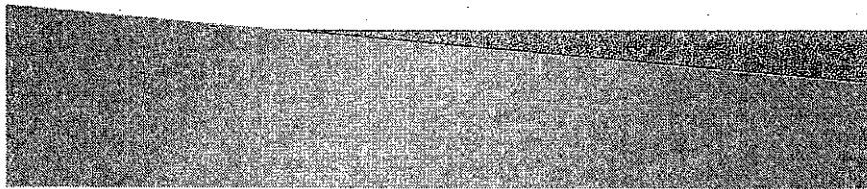


Solving Log Equations

Using Log Properties



1. Solve and check.

$$\log_4(x+3) = 2$$

$$x+3 = 16$$

$$\begin{array}{r} x+3 = 16 \\ -3 \quad -3 \\ \hline \end{array}$$

$$\boxed{x=13}$$



2. Solve and check.

$$\log_4(x+3) = \log_4(8x+17)$$

$$x+3 = 8x+17$$

$$-\frac{7x}{-7} = \frac{14}{-7}$$

$$x = -\frac{14}{7}$$

3. Solve and check.

$$\log_2 x + \log_2(x-7) = \log_2 8$$

$$\log_2 x(x-7) = \log_2 8$$

$$x(x-7) = 8$$

$$x^2 - 7x - 8 = 0$$

$$(x-8)(x+1) = 0$$

$$x=8 \quad x=-1$$

4. Solve and check.

$$\log(2x+3) = 1 + \log(x-3)$$

$$\log_{10}(2x+3) = \log_{10} 10 + \log_{10}(x-3)$$

$$\log(2x+3) = \log 10(x-3)$$

$$2x+3 = 10(x-3)$$

$$2x+3 = 10x-30$$

$$-8x+3 = -30$$

$$\frac{-8x}{-8} = \frac{-33}{-8}$$

$$x = \frac{33}{8}$$