

~~pg~~ pg 382

sum or diff

Then simplify

$$13 \log_8(5 \cdot 8)$$

$$\log_8 5 + \log_8 8$$

$$\log_8 5 + 1$$

$$15. \log_3 \frac{x}{9}$$

$$\log_3 x - \log_3 9$$

$$\log_3 x - 2$$

Table

17.

$$\log_4 15$$

$$\log_4 (3 \times 5)$$

$$\log_4 3 + \log_4 5$$

$$0.7925 + 1.1610$$

$$1.9535$$

$$21. \log_4 60$$

$$\log_4 (3 \times 4 \times 5)$$

$$\log_4 3 + \log_4 4 + \log_4 5$$

$$0.7925 + 1 + 1.1610$$

$$2.9535$$

$$23. \log_{10} 830$$

$$\log_{10}(8.3 \times 100)$$

$$\log_{10} 8.3 + \log_{10} 100$$

$$0.9191 + 2$$

$$2.9191$$

$$27. \log_4 \frac{5}{4}$$

$$\log_4 5 - \log_4 4$$

$$1.1610 - 1$$

$$\underline{\underline{0.1610}}$$

Single log then simplify

$$\log_2 5 + \log_2 7$$

$$\log_2 35$$

$$\log_3 45 - \log_3 9$$

$$\log_3 \frac{45}{9}$$

$$\log_3 5$$

$$\log_2 5 + \log_2 x - \log_2 10$$

$$\log_2 \frac{5x}{10}$$

$$\log_2 \frac{x}{2}$$

$$\log_7 3x - \log_7 9x + \log_7 6y$$

$$\log_7 \frac{18xy}{9x}$$

$$\log_7 2y$$

$$4 \log_b m + \frac{1}{2} \log_b n - (3 \log_b 2^3 p^3)$$

$$\log_b m^4 + \log_b n^{1/2} - \log_b 8p^3$$

$$\log_b \frac{m^4 n^{1/2}}{8p^3} = \log_b \frac{m^4 \sqrt{n}}{8p^3}$$

$$1 - 2 \log_7 x$$

$$\log_7 7 - \log_7 x^2$$

$$\log_7 \frac{7}{x^2}$$

$$2^8$$

2

$$9^9 + \log_2 8$$

9 + 3

12

$$11^8 - \log_4 64$$

11 - 3

8

$$\log_a 7x = \log_a (x^2 + 12)$$

$$7x = x^2 + 12$$

$$0 = x^2 - 7x + 12$$

$$0 = (x - 3)(x - 4)$$

$$x = 3 \text{ OR } x = 4$$

$$\log_b(x^2 - 15) = \log_b(6x + 1)$$

$$x^2 - 15 = 6x + 1$$

$$x^2 - 6x - 16 = 0$$

$$(x - 8)(x + 2)$$

+8 or -2

$$\begin{array}{r} -16 \\ -8 \quad 2 \\ -6 \end{array}$$

$$2 \log_3 x + \log_3 5 = \log_3 (14x + 3)$$

$$\log_3 5x^2 = \log_3 (14x + 3)$$

$$5x^2 - 14x - 3 = 0$$

$$5x^2 - 15x + 1x - 3 = 0$$
$$5x(x-3) + 1(x-3) = 0$$

$$(x-3)(5x+1) = 0$$

$x = 3$  or  $x = -1/5$

$$\begin{array}{r} -15 \\ -15 \\ \hline -14 \end{array}$$