

Solve each equation.

P. 21-22

(1) $\log(p+2) = \log(3p-8)$
 $p = 5$

(2) $\log(-2m+8) = \log(4m-4)$
 $m = 2$

(3) $\log(-2x-1) = \log 15$
 $x = -8$

(4) $\log_7(r+4) + 4 = 4$
 $\log_7(r+4) = 0$ (ONE LOG/SIDE → EXP. FORM)
 $7^0 = r+4 = 1 \rightarrow r = -3$

(5) $-6 + \log_2(x-10) = -3$
 $\log_2(x-10) = 3$ (EXP. FORM!)

(6) $\log x - \log 4 = 1$
 $\log \frac{x}{4} = 1$ (-CONDENSE -EXP. FORM!)
 $4 \cdot 10^1 = \frac{x}{4} \cdot 4$
 $x = 40$

(7) $\log 5 + \log x = 3$
 $x = 200$

(8) $\log x + \log 4 = 2$
 $x = 25$

(9) $\log 8 + \log x = 2$
 $x = 12.5$

$x = 3/4 = 0.75$
 (10) $\log_3 8 + \log_3(x+6) = \log_3 54$
 $\log_3 8(x+6) = \log_3 54$
 $8x + 48 = 54$

$$11) \log_6 8 + \log_6 3x^2 = 1$$

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

~~$$12) \ln(x+4) - \ln 7 = 5$$~~

$$13) \log_7 -2x + \log_7 5 = 2$$

$$-4.9$$

$$14) \log_2 6 - \log_2 4x = 4$$

$$\frac{3}{32}$$

$$15) \log_4 4x^2 - \log_4 9 = 5$$

$$\pm 48$$

$$16) \log_2 x - \log_2 (x-1) = 1$$

$$2$$

$$17) \log_8 5 - \log_8 (x+3) = \log_8 11$$

$$-2.55$$

$$18) \log_5 (x+6) - \log_5 x = 4$$

$$\frac{1}{104}$$

$$19) \log_2 (x^2 + 2) - \log_2 9 = 2$$

$$\pm 5.83$$

$$20) \log_9 3x + \log_9 3 = 1$$

$$x=1$$

$$21) \log_7 10 + \log_7 (x-1) = \log_7 19$$

$$2.9$$

$$22) \ln 3 - \ln (9-4x) = \ln 18$$

$$\frac{53}{24}$$