

Solving Practice Mix

Solve each equation.

1) $-4 \cdot 18^x = -81$

$$18^x = 20.25$$

$$\log_{18} 20.25 = x$$

$$\boxed{1.04 = x}$$

2) $\log_4 x = 3$

$$4^3 = x$$

$$\boxed{64 = x}$$

3) $3.8 \cdot 12^{p+9} = 71$

$$12^{p+9} = 18.68$$

$$\log_{12} 18.68 = p+9$$

$$1.18 = p+9$$

$$\boxed{-7.82 = p}$$

4) $\log_9 (x+9) = 1$

$$9^1 = x+9$$

$$9 = x+9$$

$$\boxed{0 = x}$$

5) $-8 \cdot 5^{9-7.9x} = -36$

$$5^{9-7.9x} = 4.5$$

$$\log_5 4.5 = 9-7.9x$$

$$.93 = 9-7.9x$$

$$-8.07 = -7.9x$$

$$\boxed{1.02 = x}$$

6) $\log_7 (9-5n) = 0$

$$7^0 = 9-5n$$

$$1 = 9-5n$$

$$-8 = -5n$$

$$\boxed{1.6 = n}$$

7) $7^{-3x-8} = 48$

$$\log_7 48 = -3x-8$$

$$1.99 = -3x-8$$

$$9.99 = -3x$$

$$\boxed{-3.33 = x}$$

8) $7 \cdot 3^{-x} = 70.5$

$$3^{-x} = 10.07$$

$$\log_3 10.07 = -x$$

$$2.1 = -x$$

$$\boxed{-2.1 = x}$$

9) $-3 \log_6 x = 0$

$$\log_6 x = 0$$

$$6^0 = x$$

$$\boxed{1 = x}$$

10) $-3 - \log_2 b = -4$

$$-\log_2 b = -1$$

$$\log_2 b = 1$$

$$2^1 = b$$

$$\boxed{2 = b}$$

$$11) e^{9x} = 96$$

$$\ln 96 = 9x$$

$$4.56 = 9x$$

$$\boxed{.51 = x}$$

$$12) \log -n = -1$$

$$10^{-1} = -n$$

$$.1 = -n$$

$$\boxed{-.1 = n}$$

$$13) 5 \cdot 3^{r+10} + 5 = 27$$

$$5 \cdot 3^{r+10} = 22$$

$$3^{r+10} = 4.4$$

$$\log_3 4.4 = r+10$$

$$1.35 = r+10$$

$$\boxed{-8.65 = r}$$

$$14) -10 \cdot 20^k - 4 = -83$$

$$-10 \cdot 20^k = -79$$

$$20^k = 7.9$$

$$\log_{20} 7.9 = k$$

$$\boxed{.69 = k}$$

$$15) 4 + \log_2 -6x = 4$$

$$\log_2 -6x = 0$$

$$2^0 = -6x$$

$$1 = -6x$$

$$\boxed{-.1\bar{6} = x}$$

$$16) 2 \cdot 5^{4n} - 4 = 69$$

$$2 \cdot 5^{4n} = 73$$

$$5^{4n} = 36.5$$

$$\log_5 36.5 = 4n$$

$$2.24 = 4n$$

$$\boxed{.56 = n}$$

$$17) -10 \log_5 (p-2) - 3 = 17$$

$$-10 \log_5 (p-2) = 20$$

$$\log_5 (p-2) = -2$$

$$5^{-2} = p-2$$

$$.04 = p-2$$

$$\boxed{2.04 = p}$$

$$18) 8^x - 9 = 89$$

$$8^x = 98$$

$$\log_8 98 = x$$

$$\boxed{2.2 = x}$$

$$19) \log_8 (2x-5) = 3$$

$$8^3 = 2x-5$$

$$512 = 2x-5$$

$$517 = 2x$$

$$\boxed{258.5 = x}$$

$$20) 16^n = 4$$

$$\log_{16} 4 = n$$

$$\boxed{.5 = n}$$

$$21) 8 \log_4 (8a+2) = 0$$

$$\log_4 (8a+2) = 0$$

$$4^0 = 8a+2$$

$$1 = 8a+2$$

$$-1 = 8a$$

$$\boxed{-0.125 = a}$$

$$23) 12^{m+2} = 18$$

$$\log_{12} 18 = m+2$$

$$1.16 = m+2$$

$$\boxed{-0.84 = m}$$

$$25) -6 \cdot 15^{4m+6} - 10 = -84$$

$$-6 \cdot 15^{4m+6} = -74$$

$$15^{4m+6} = 12.\bar{3}$$

$$\log_{15} 12.\bar{3} = 4m+6$$

$$.93 = 4m+6$$

$$-5.07 = 4m$$

$$\boxed{-1.27 = m}$$

$$27) -4 \cdot 4^x + 5 = -58$$

$$-4 \cdot 4^x = -63$$

$$4^x = 15.75$$

$$\log_4 15.75 = x$$

$$\boxed{1.99 = x}$$

$$29) -5 \log_5 -v - 4 = -14$$

$$-5 \log_5 -v = -10$$

$$\log_5 -v = 2$$

$$5^2 = -v$$

$$25 = -v$$

$$\boxed{-25 = v}$$

$$22) 19^{4b+5} = 38$$

$$\log_{19} 38 = 4b+5$$

$$1.24 = 4b+5$$

$$-3.76 = 4b$$

$$\boxed{-0.94 = b}$$

$$24) 8 + 3 \log_8 (-8x-4) = 11$$

$$3 \log_8 (-8x-4) = 3$$

$$\log_8 (-8x-4) = 1$$

$$8^1 = -8x-4$$

$$8 = -8x-4$$

$$12 = -8x$$

$$\boxed{-1.5 = x}$$

$$26) 2 \log_6 (-9a-9) = 4$$

$$\log_6 (-9a-9) = 2$$

$$6^2 = -9a-9$$

$$36 = -9a-9$$

$$45 = -9a$$

$$\boxed{-5 = a}$$

$$28) 4 + 7 \log_{11} p = 4$$

$$7 \log_{11} p = 0$$

$$\log_{11} p = 0$$

$$11^0 = p$$

$$\boxed{1 = p}$$

$$30) 3^a = 59.6$$

$$\log_3 59.6 = a$$

$$\boxed{3.72 = a}$$