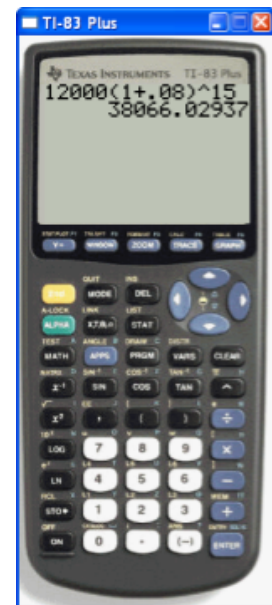


# **Chapter 6 Review**

**Pg. 412-414 #1-51 odd**

$$1) 12000 \left(1 + \frac{.08}{1}\right)^{1(15)}$$

\$38,066.03



$$3) f(x) = 4(0.89)^x$$

0.89 is less than 1

So it represents

decay

$$7) 2400 \left( 1 + \frac{.045}{1} \right)^{1(12)}$$

$\$4070.12$

$$9) 2400 \left( 1 + \frac{.045}{365} \right)^{365(12)}$$

$\$4118.28$

$$11) \log_3 27 = 3 \rightarrow \boxed{3^3 = 27}$$

$$13) v = \log_8 64$$

$$8^v = 64$$

$$8^v = 8^2$$

$$\boxed{v = 2}$$

$$15) 2 = \log_{12} v$$

$$12^2 = v$$

$$144 = v$$

$$17) \log_2 v = -3$$

$$2^{-3} = v$$

$$\frac{1}{8} = v$$

$$19) \log_v 49 = 2$$

$$\sqrt{v^2} = \sqrt{49}$$
$$v = 7$$

$$21) \log_7 45$$

$$\log_7 9 + \log_7 5$$

$$1.1292 + .8271$$

$$1.9563$$

$$23) \log_7 35$$

$$\log_7 7 + \log_7 5$$

$$1 + .8271$$

$$\boxed{1.8271}$$

$$25) \log 6 - \log 3 + 2 \log 7$$

$$\log \frac{6}{3} + \log 7^2$$

$$\log(2 \cdot 49)$$

$$\log 98$$

$$27) \log_7 7^3 \quad \boxed{3}$$

$$29) \log x = 8$$

$$x = 10^8 = 100,000,000$$

$$31) \quad \frac{5^x + 100 = 98}{-100 \quad -100}$$

$$5^x = -2$$

$$\log_5 -2 = x$$

$$\frac{\log -2}{\log 5} = x$$

No Solution

$$33) \quad \underset{-7}{7} + 3^{2x-1} = \underset{-7}{154}$$

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$$3^{2x-1} = 147$$

$$\log_3 147 = 2x - 1$$

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$$\frac{\log_3 147 + 1}{2} = \frac{2x}{2}$$

$$\frac{\log_3 147 + 1}{2} = x$$

$$\frac{\frac{\log 147}{\log 3} + 1}{2} = x$$

$$\boxed{2.77 = x}$$

$$35) \log_3 14 \rightarrow \frac{\log 14}{\log 3} = \boxed{2.40}$$

$$37) \log_{.5} 6 \rightarrow \frac{\log 6}{\log .5} = \boxed{-2.58}$$

$$39) \text{ pH} = -\log_{10} \text{H}^+$$

$$-1 \left[ 2.5 = -\log_{10} \text{H}^+ \right]$$

$$-2.5 = \log_{10} \text{H}^+$$

$$\text{H}^+ = 10^{-2.5}$$

$$41) e^{-5} = \boxed{.007}$$

$$43) \ln 0.05 = \boxed{-2.996}$$

$$45) \log_x \frac{1}{128} = \Rightarrow$$

$$x^{-7} = \frac{1}{128}$$

$$\frac{1}{x^7} = \frac{1}{128}$$

$$\sqrt[7]{x^7} = \sqrt[7]{128}$$

$$x = 2$$

$$47) x \log \frac{1}{6} = \log 6$$

$$\log \frac{1}{6}^x = \log 6$$

$$\frac{1}{6}^x = 6$$

$$\log_{\frac{1}{6}} 6 = x$$

$$\frac{\log 6}{\log \frac{1}{6}} = \boxed{x = -1}$$

$$\frac{x \log \frac{1}{6} = \log 6}{\frac{\log \frac{1}{6}}{\log \frac{1}{6}}}$$

$$x = \frac{\log 6}{\log \frac{1}{6}} = \boxed{-1}$$

$$49) A = A_0 e^{-.35n}$$

$$\frac{\frac{1}{2} A_0}{A_0} = \frac{A_0 e^{-.35n}}{A_0}$$

$$\frac{1}{2} = e^{-.35n}$$

$$\ln \frac{1}{2} = \ln e^{-.35n}$$

$$\frac{\ln \frac{1}{2}}{-.35} = \frac{-.35n}{-.35}$$

$$\frac{\ln \frac{1}{2}}{-.35} = n = \text{about 2 days}$$

$$51) R = 10 \log \frac{I}{I_0}$$

$$R = 10 \log \frac{10^{8.5} \cancel{I_0}}{\cancel{I_0}}$$

$$R = 10 \log 10^{8.5}$$

$$R = 10(8.5)$$

$$R = 85 \text{ decibels}$$