

$$\textcircled{31} \quad A = Pa^x$$

$$= 1(2)^x \quad \leftarrow \begin{array}{l} \# \text{ OF} \\ \frac{1}{2} \text{- HOUR} \\ \text{INTERVALS} \end{array} \quad \text{OR} \quad 1(2)^{2x} \quad \leftarrow \begin{array}{l} \# \text{ HOURS} \\ \frac{1}{2} \end{array}$$

$$1(2)^{48}$$

$$\textcircled{32} \quad A = Pa^x$$

$$A = 10,000(.8)^x$$

$$(a) \quad \frac{1000}{10,000} = \frac{10,000(.8)^x}{10,000}$$

$$.1 = .8^x$$

$$\ln .1 = \ln .8^x$$

$$\frac{\ln .1}{\ln .8} = \frac{x \ln .8}{\ln .8}$$

$$(b) \quad 1 = 10,000(.8)^x$$

$$\frac{.4}{10,000} = \frac{10,000(.8)^x}{10,000}$$

$$.00004 = .8^x$$

$$\log .00004 = \log .8^x$$

$$\frac{\log .00004}{\log .8} = \frac{x \log .8}{\log .8}$$

$$45.382 = x$$

1.3

(23)  $A = Pa^x$       # 14 DAY INTERVALS      # DAYS

(a)  $A = 6.6(.5)^t$       or  $A = 6.6(.5)^{t/14}$

(b)  $\frac{1}{6.6} = \frac{6.6(.5)^{t/14}}{6.6}$

$$\frac{1}{6.6} = .5^{t/14}$$

$$\ln \frac{1}{6.6} = \ln .5^{t/14}$$

$$\frac{\ln \frac{1}{6.6}}{\ln .5} = \frac{t}{14} \frac{\ln .5}{\ln .5}$$

$$14 \frac{\ln \frac{1}{6.6}}{\ln .5} = \frac{t}{14} \cdot 14$$

$$38.115 \text{ DAYS} = t$$

(48)  $(1, 4.5)$ ,  $(-1, .5)$        $f(x) = k \cdot a^x$

$$\frac{4.5}{.5} = \frac{.5a \cdot a}{.5}$$

$$4.5 = k \cdot a^1$$

$$.5 = k a^{-1}$$

$$9 = a^2$$

$$a(5) = \left(\frac{k}{a}\right)a$$

$$\pm 3 = a$$

$$3 = a$$

$$.5a = k$$

$$.5(3) = k$$

$$1.5 = k$$