

1.3

39) OMIT

47) (d) $(-.767, 2) \cup (4, \infty)$

31) $A = Pa^x$
 $A = 1(2)^x \leftarrow \# \text{ OF HALF-HOUR UNITS}$
 $= 2^{48} \text{ BACTERIA}$

22) $A = Pa^x$
 $= 6250(1.0275\%)^x \leftarrow \text{YEARS SINCE 1890}$
 (a) 1915: $6250(1.0275)^{25} =$
 1940: $6250(1.0275)^{50} =$

32) $A = Pa^x$
 $A = 10000(.8)^x$

38) (b) $100e^{.693 \times 6} =$
 (c) $200 = 100e^{.693x}$

48) $f(x) = k \cdot a^x$ $\begin{matrix} x & y \\ (1, 4.5) & (-1, .5) \end{matrix}$

$\rightarrow 4.5 = k \cdot a^1$
 $a \cdot .5 = (k \cdot a^{-1})a \rightarrow .5 = k \cdot a^{-1}$
 $4.5 = (.5a)a \rightarrow a(.5) = (k \cdot \frac{1}{a})a$
 $\frac{4.5}{.5} = \frac{.5a^2}{.5} \rightarrow .5a = k$

$a = a^2$
 $\pm 3 = a$
 $3 = a$

$.5(3) = k$
 $1.5 = k$
 $f(x) = 1.5(3)^x$

1.3
23) $A = P a^x$
 $A = 6.6 (.5)^x$ ← # 14 DAY INTERVALS
(FORTNIGHTS)

$$A = 6.6 (.5)^x = 1$$

(b)
19) $A = 1853 (1.03)^x$ ← YEARS SINCE 1998

(c) $1853 (1.03)^{12}$

8) $(1/27)^x$
 $(3^{-3})^x$
 3^{-3x}

25) $\frac{A}{P} = \frac{P a^x}{P}$
 $2 = (1.0625)^x$

$$\begin{aligned}
 &1.3 \\
 49) &f(x) = k \cdot a^x \\
 &1.5 = k \cdot a^1 \\
 &\frac{6}{a^{-1}} = \frac{k \cdot a^{-1}}{a^{-1}}
 \end{aligned}$$

$$6a = k$$

$$6\left(\frac{1}{2}\right) = k = 3$$

$$1.5 = 6a \cdot a$$

$$\frac{1.5}{6} = \frac{6a^2}{6}$$

$$\sqrt{.25} = \sqrt{a^2}$$

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

$$\frac{1}{2} = a$$

$$43) A = Pa^x$$

$$\frac{400}{200} = \frac{200(1.045)^x}{200}$$

$$2 = (1.045)^x$$

$$\ln 2 = \ln (1.045)^x$$

$$\frac{\ln 2}{\ln(1.045)} = \frac{x \ln(1.045)}{\ln(1.045)}$$