

Answers to Homework

4)

$$\frac{1}{2} = b^3$$

$$\left(\frac{1}{2}\right)^{1/3} = b$$

$$b = .7937$$

$$f(7) = 100(.7937)^7$$

$$\approx 19.84 \text{ mg}$$

Continuous

$$\frac{1}{2} = e^{3r}$$

$$\frac{\ln(.5)}{3} = r$$

$$r = -.231$$

$$f(7) = 100e^{(-.231 \cdot 7)}$$

$$\approx 19.849$$

b)

$$\frac{1}{2} = b^{50}$$

$$10 = a(.9881)^{180}$$

$$\left(\frac{1}{2}\right)^{1/50} = b$$

$$.9881 = b$$

$$\frac{10}{(.9881)^{180}} = a$$

$$a = 86.266$$

$$86.266(.9881)^{660} \leftarrow 180 + 480$$

$$\approx .0305 \text{ mg}$$

8)

$$\frac{17}{20} = \frac{20b}{20} b^7$$

$$.85 = b^7$$

$$.85^{1/7} = b$$

$$b = .9771$$

$$\frac{1}{2} = .9771^t$$

$$109.9771^{1/2} = t$$

$$\frac{\log .5}{\log .9771} = 29.92$$

$$\approx 30 \text{ days}$$