

Answers to assigned even-numbered problems in Chapter 5

Section 5.1

6 a) $\frac{1}{3}$, b) $2^{-\frac{9}{4}}$

14 a) x , b) x

20 $x = 4$.

28 (It is a problem to give a plot.)

Section 5.2

34 (It is a problem to give a plot.)

Section 5.3

4 $A = 150000 \left(1 + \frac{0.09}{365}\right)^{365 \times 3} = 196488.12$.

6 The effective rates are a) 8.3000% and b) 8.3278%

10 $A = 25000(1 + 0.07)^6 = 37518.259$ and the interest earned = 12518.259

32 $P = 22289.22 \left(1 + \frac{0.08}{4}\right)^{-20} = 15000$.

Section 5.4

8 $(u^2 e^{-u})' = u(2 - u)e^{-u}$.

32 $(t^2 e^{-2t})' = 2t(1 - t)e^{-2t}$, $(t^2 e^{-2t})'' = 2(1 - 4t + 2t^2)e^{-2t}$,

Section 5.5

2 $(\ln 5x)' = \frac{1}{x}$.

8 $(\ln(\sqrt{x} + 1))' = \frac{1}{2(x + \sqrt{x})}$.

28 $\left(e^x \ln \sqrt{x+3}\right)' = \frac{1}{2}e^x \left(\ln(x+3) + \frac{1}{x+3}\right).$

Section 5.6

2 a) The decay constant is 0.06; b) The initial quantity is 2000; c) (This part asks for giving some values of $Q(t)$).

4 a) (This part asks for giving some values of $Q(t)$). b) The estimate rate of growth in 2010 is $5.3(e^{0.02t})' \Big|_{t=20} = 0.158133$.

12 $0.18Q_0 = Q_0e^{-0.00012t^*}$, $t^* = 14289.99$, i.e., the approximate age of the bones is 14290 years.