First Exercise Set Solutions

1-1 $A(10) = \left[A(0)\left(1+\frac{.04}{4}\right)^{16}\right]\left(1+\frac{.06}{2}\right)^{12}$

$= (2000)(1.17257860)(1.42576089)$

$= \$3,343.63$

1-2 $280 = 100\left(1-\frac{d^{(4)}}{4}\right)^{-40}\left(1+\frac{.06}{4}\right)^{40}$

$\left(1-\frac{d^{(4)}}{4}\right)^{-40} = 1.54353450$

$1-\frac{d^{(4)}}{4} = .98920679 6$

$d^{(4)} = .04317 28$

1-3 $a(0) = a = 1 \qquad a(1) = 1+b+c = 1+.04$

$a(2) - a(1) = .05 = 1+2b+4c-1-b-c$

$b+c = .04 \qquad b+3c = .05$

$c = .005 \qquad b = .035$

$a(t) = 1+(.035)t+(.005)t^2$

$a'(t) = (.035)+(.01)t$

$\text{Ans} = \frac{a'(3)}{a(3)} = \frac{.035+.03}{1+(.035)3+(.005)9} = .056522$