Chapter 5 – Example 1

You have just deposited $50,000 into a savings account that pays an APR of 3% per year compounded monthly. You plan to begin making quarterly withdrawals from this account 2 years from today. You would like for each withdrawal to be 0.4% larger than the previous one and would like to continue making withdrawals through 5 years from today. How large will be your final withdrawal from the account?

$$r\left(\tfrac{1}{12}\right) = \frac{.03}{12}$$

$$r\left(\tfrac{1}{4}\right) = \left(1 + r\left(\tfrac{1}{12}\right)\right)^3 - 1$$

(1) $$V_{1\frac{3}{4}} = 50{,}000\left(1 + r\left(\tfrac{1}{4}\right)\right)^7$$

(2) $$V_{1\frac{3}{4}} = \left(\frac{C_1}{r\left(\frac{1}{4}\right) - .004}\right)\left(1 - \left(\frac{1.004}{1 + r\left(\frac{1}{4}\right)}\right)^{13}\right) \Rightarrow \text{solve for } C_1$$

(3) $$C_{Final} = C_1(1.004)^{12}$$