

**Short Answer 1:** Assume you have just deposited \$100 into an account and plan to make monthly withdrawals that will continue forever and grow by 1% each. Your first withdrawal will occur three years from today. List the sequence of steps (use words not equations) that would allow you to solve for your first withdrawal? For each step, state what you are solving for.

- 1) Future value of a single cash flow, solve for future value
- 2) present value of a perpetuity, solve for Cash flow (C)

**Short Answer 2:** Assume two dollar denominated bonds issued in the U.S. are correctly priced but offer different rates of return. What might explain the lower return on one of the bonds?

- 1) shorter maturity, 2) lower tax rate, 3) less risk

**Problem:** Assume that two months from today you plan to make the first of a series of semiannual deposits into the account that pays an APR of 7% with quarterly compounding. Your deposits will grow by 1% each and your final deposit will occur three years and two months from today. You plan to make a series of annual withdrawals from this account beginning three and a half years from today. Your first withdrawal will equal \$250 and subsequent withdrawals would shrink by 2% each. Your final withdrawal will occur seven and a half years from today. Set up the calculations (and plug in as many numbers as possible) to determine the size of your deposit one year and two months from today.

Wall Street Journal Questions are on the back of this page.

$$+4 \left( r\left(\frac{1}{4}\right) = \frac{.07}{4} \right)$$

$$+4 \left( r\left(\frac{1}{2}\right) = \left(1 + r\left(\frac{1}{4}\right)\right)^2 - 1 \right)$$

$$+4 \left( PV_{2.5, 250} = \left( \frac{250}{r(1) - (-.02)} \right) \left( 1 - \left( \frac{1-.02}{1+r(1)} \right)^5 \right) \right)$$

Note: -5 if use wrong rate that solved for previously

$$+4 \left( FV_{3.5, 250} = PV_{2.5, 250} (1+r(1))^{\frac{5}{2}} \right)$$

set equal solve for C

$$+4 \left( FV_{3.5, 250} = \left( \frac{C}{r\left(\frac{1}{2}\right) - .01} \right) \left( \left( 1 + r\left(\frac{1}{2}\right) \right)^7 - (1.01)^7 \right) \right)$$

Note: -5 if use wrong rate that solved for previously

$$+4 \left( C_{1.5, 250} = C(1.01)^2 \right)$$

Note: -1 for each missing parenthesis