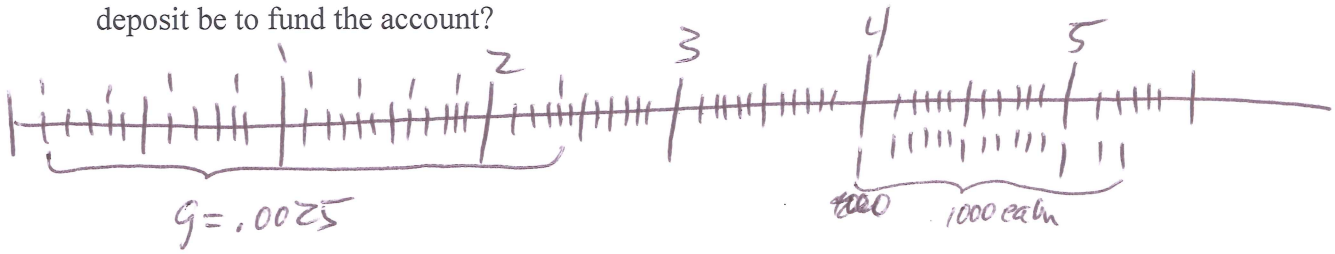
Quiz A for 9:45 Class: 7/13/12 Name Key

Assume that one month from today you plan to make the first of a series of quarterly deposits into an account earning an APR of 4%. The interest on this account compounds monthly. You plan to continue to make quarterly deposits into the account through two years and four months from today and you plan for each deposit to be 0.25% larger than the previous one. Four years from today, you plan to make the first of a series of equal monthly withdrawals of $1000 each from the account. You would continue to make these withdrawals through five years and two months from today. How large must your first deposit be to fund the account?



APR = .04
Compounding = monthly (+3) (15)

+5 $r\left(\frac{1}{12}\right) = \frac{.04}{12}$ (+7)

+5 $r\left(\frac{1}{4}\right) = \left(1+r\left(\frac{1}{12}\right)\right)^{3} - 1$ (+7) (12)

+5 $PV_{3\text{yrs},11\text{mo}} = \frac{1000}{r\left(\frac{1}{12}\right)}\left(1-\left(\frac{1}{1+r\left(\frac{1}{12}\right)}\right)^{15}\right)$ (+3) (+7) (15)

+5 (1) $PV_{2\text{yrs},4\text{mo}} = PV_{3\text{yrs},11\text{mo}}\left(\frac{1}{1+r\left(\frac{1}{12}\right)}\right)^{19}$ (+10) (15)

+5 (2) $FV_{2\text{yrs},4\text{mo}} = \left(\frac{C}{r\left(\frac{1}{4}\right)-.0025}\right)\left(\left(1+r\left(\frac{1}{4}\right)\right)^{10}-(1.0025)^{10}\right)$ (+3) (+7) (18)

⇒ set (1) & (2) equal & solve for C