

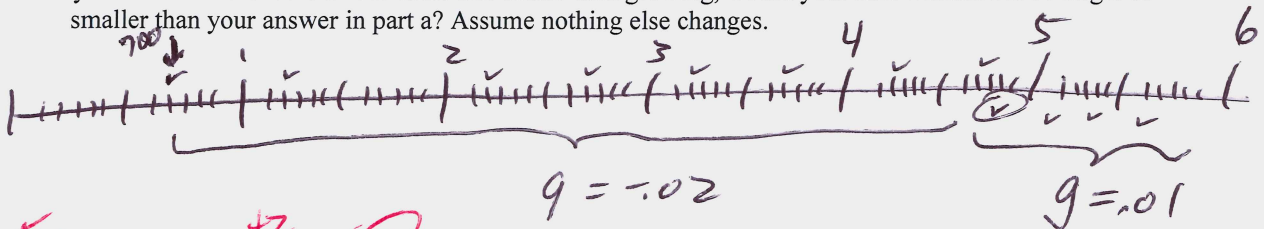
Quiz A for 11:30 Class: 7/19/13

Name Key

Note: You do not need to solve anything. Just set up all equations, plug in all the numbers, and indicate which variable you are solving for (in each equation).

Assume that eight months from today you plan to make the first of several semiannual deposits into an account that pays an APR of 5.5% with monthly compounding. Your first deposit will equal \$700, each of your subsequent semiannual deposits will shrink by 2% each, and your final semiannual deposit will occur four years and eight months from today. From this account you plan to make quarterly withdrawals beginning four years and ten months from today. Subsequent quarterly withdrawals will grow by 1% each and your final withdrawal will occur five years and seven months from today.

- a. What is the size your first withdrawal?  
 b. If your withdrawals were all the same size rather than growing, would your first withdrawal be larger or smaller than your answer in part a? Assume nothing else changes.



+5  
 a.  $r(\frac{1}{12}) = \frac{.055}{12}$  (12)

+3  
 $r(\frac{1}{4}) = (1 + r(\frac{1}{12}))^3 - 1$  (8)

+3  
 $r(\frac{1}{2}) = (1 + r(\frac{1}{12}))^6 - 1$  (6)

+5  
 $FV_{4\text{ yrs}, 8\text{ mo}} = \left( \frac{700}{r(\frac{1}{2}) - (-0.02)} \right) \left( (1 + r(\frac{1}{2}))^9 - (1 - 0.02)^9 \right)$  (14)

+5  
 $PV_{4\text{ yrs}, 7\text{ mo}} = \frac{FV_{4\text{ yrs}, 8\text{ mo}}}{(1 + r(\frac{1}{12}))^{15}} = A$  (10)

+5  
 $PV_{4\text{ yrs}, 7\text{ mo}} = \left( \frac{C}{r(\frac{1}{4}) - 0.01} \right) \left( 1 - \left( \frac{1.01}{1 + r(\frac{1}{4})} \right)^4 \right) = B$  (17)

+1  $\Rightarrow$  set  $A = B$  + solve for  $C$

b. larger +5