EXAM FM QUESTIONS OF THE WEEK

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Week of January 29/07

A perpetuity pays 1 every 2 years starting 2 years from now and has a present value of 12.5. The annual effective rate of interest for valuation of this perpetuity is i. A second perpetuity pays 1 every 6 months starting now and has a present value of 50. The annual effective rate of interest for the second perpetuity is j. Find $\frac{j}{i}$.

The solution can be found below.

Week of January 29/07 - Solution

For the first perpetuity, the 2-year effective interest rate is $(1+i)^2 - 1$, and the pv of the perpetuity-immediate paying 1 at the end of every 2 years is $\frac{1}{(1+i)^2-1} = 12.5$. Solving for i results in $i = .039230$.

For the second perpetuity, the $\frac{1}{2}$-year effective discount rate is $1-(1+j)^{-1/2}$, and the pv of the perpetuity-due paying 1 at the end of every 6 months is $\frac{1}{1-(1+j)^{-1/2}} = 50$. Solving for j results in $i = .041233$.

$\frac{j}{i} = \frac{.041233}{.039230} = 1.051$