EXAM FM QUESTIONS OF THE WEEK
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Week of December 26

Smith invests $100,000 into a 3-year "step-up" Guaranteed Investment Certificate (GIC).
The GIC will automatically make monthly deposits of interest payable into Smith's bank account
at the end of each month. The GIC pays interest at nominal annual rates payable monthly. The
GIC annual interest rate in years 1, 2 and 3 are, respectively, 3%, 6% and 12%. Smith's bank
account earns nominal annual interest compounded monthly at an annual rate of 6%. Find
Smith's equivalent annual effective yield over the 3-year period.

The solution can be found below.

Week of December 26 - Solution

In the first year, deposits of $100,000 \times \frac{.03}{12} = 250$ are made at the end of each month into Smith's bank account. In the second year, the monthly deposits are 500 and in the third year, the monthly deposits are 1000. The accumulated amount in Smith's account at the end of 3 years is $250 s_{\overline{12}|.005} \cdot (1.005)^{24} + 500 s_{\overline{12}|.005} \cdot (1.005)^{12} + 1000 s_{\overline{12}|.005} = 22,360$.

Along with the initial investment of 100,000, Smith has 122,360 at the end of 3 years.

The equivalent annual effective yield rate i is the solution of the equation $100,000(1+i)^3 = 122,360$. Solving for i results in $i = .0696$.