EXAM FM QUESTIONS OF THE WEEK

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Question 9 - Week of September 19

On January 1, an investment account is worth 300,000. M months later, the value has increased to 315,000 and 15,000 is withdrawn. $2M$ months prior to the end of the year, the account is again worth 315,000 and 15,000 is withdrawn. On December 31, the account is worth 315,000. The annual effective yield rate, using the dollar-weighted method, is 16%. Calculate M.

A. 2.00 B. 2.25 C. 2.50 D. 2.75 E. 3.00

The solution can be found below.

Question 9 Solution

The first withdrawal of 15,000 occurs M months after the start of the year (or with $1 - \frac{M}{12}$ years remaining until the end of the year), and the second withdrawal of 15,000 occurs $\frac{2M}{12}$ years before the end of the year. The equation for the dollar-weighted return is
$300,000[1.16] - 15,000[1 + .16(1 - \frac{M}{12})] - 15,000[1 + .16(\frac{2M}{12})] = 315,000$.
Solving for M results in $M = 3$. Answer: E