

45. Solution: A

Key concepts for time-weighted rate of return:

Divide the time period into subintervals for each time there is a deposit or withdrawal

For each subinterval, calculate the ratio of the amount in the fund at the end of the subinterval (*before* the deposit or withdrawal at the end of the subinterval) to the amount in the fund at the beginning of the subinterval (*after* the deposit or withdrawal)

Multiply the ratios together to cover the desired time period

Thus, for this question, time-weighted return = 0% means: $1+0 = (12/10) (X/(12+X))$ or $120 + 10 X = 12 X$ and $X = 60$

Key formulas for estimating dollar-weighted rate of return:

Fund January 1 + deposits during year – withdrawals during year + interest = Fund December 31.

Estimate of dollar-weighted rate of return = amount of interest divided by the weighted average amount of fund exposed to earning interest

Thus, for this question, amount of interest $I = X - X - 10 = -10$ and dollar-weighted rate of return is given by

$Y = [-10/(10 + \frac{1}{2} (60))] = -10/40 = -.25 = -25\%$