EXAM FM QUESTIONS OF THE WEEK

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Week of August 13/07

An investment fund begins and ends the year with a balance of 100.
A deposit of 10 is made at time s and withdrawal of 20 is made at time $s + \frac{1}{2}$, where $0 < s < \frac{1}{2}$. Find the maximum and minimum possible dollar-weighted returns that can occur.

The solution can be found below.

Week of August 13/07 - Solution

The dollar-weighted return is i in the equation

$100(1+i)+10[1+(1-s)i]\ -\ 20[1+(1-s-\frac{1}{2})i]=100$.

Solving for i results in $i=\frac{10}{100+10(1-s)-20(1-s-\frac{1}{2})}=\frac{10}{100+10s}$.

Since $0<s<\frac{1}{2}$, it follows that $0<10s<5$,
and then $100<100+10s<105$, and then $\frac{10}{105}<\frac{10}{100+10s}<\frac{10}{100}$.

The minimum and maximum values of i are $\frac{10}{105}=.0952$ and $\frac{10}{100}=.10$.