Single-payment factors

Let
- \( P \) = original investment
- \( r \) = rate of interest per period
- \( n \) = number of periods
- \( S_n \) = value of investment after \( n \) periods

Then
\[
S_n = (1 + r)^n P
\]

**single-payment compound-amount factor**

Uniform Series of Payments

Consider a sequence of \( n \) uniform periodic payments, \( R \), earning interest at rate \( r \) per period, compounded at the end of each period. Then the accumulated value after \( n \) periods is
\[
S_n = \frac{(1 + r)^n - 1}{r} R
\]

**uniform-series compound-amount factor**

Conversely,

the amount of each payment \( R \) required to accumulate a sum \( S \) after \( n \) periods at interest rate \( r \) is
\[
R = \frac{r}{(1 + r)^n - 1} S_n
\]

**sinking-fund deposit factor**

Finally, expressing a present amount \( P \) as an equivalent sequence of \( n \) uniform payments \( R \) gives
\[
R = \frac{r(1 + r)^n}{(1 + r)^n - 1} P
\]

**capital recovery factor**

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<th>Find</th>
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<tr>
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