Theory of Interest

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March 6, 2023

1 3/6/23 Lecture

Homework and Logistics

- wednesday 4pm math meeting
- illustrations are in green small handbook associated with this day
- Get a credit card plan
- get a rider such that after your life insurance expires it keeps building up. you can have a rider to pull money out 60% if you are terminally ill. having a will makes things better.
- Make a master tex file for this folder

Example 2.2.6 a. consider and annuity as in e.g. 2.2.4 with the following adjustments. suppose that the interest rate is 12% per annun for the first 10 months with payments of X each, and the rate doubles to 24% for the rest of the term with payments of $2X$ each. Determine the level payment for each period.

Solution :

Recall that the accumulated value of this annuity (see e.g. 2.2.4) is 10000, consequently (keep in mind we accumulate the 10 years),

$$\begin{aligned} XS_{\overline{10}|i_1}\left(1+i_2\right)^{10} + 2XS_{\overline{10}|i_2} &= 10000 \\ X\frac{[(1.01)^{10}-1]}{0.01} + 2X\frac{[(1.02)^{10}-1]}{0.02} &= 10000 \\ X &= 288.58 \end{aligned}$$

Example 2.2.7 b. Find the monthly payment for a 30 year fixed loan of 200,000 with APR of 4.5% compounded monthly, and payments made at the end of each month.

Solution :