

Validation against published sources



MortgageMath
Precise Loan Amortization in Python

mortgagemath 0.5.0 · rendered 2026-04-30

Every fixture in the table below reproduces **every** value its source publishes, to the cent. The library follows a strict policy: if any published value diverges, the fixture stays out. The six parameter columns show the exact LoanParams settings required to match each source — the same six knobs documented in the *at-a-glance* vignette.

Validated fixtures

Source	Loan	Day	Bal	Rnd	Cmp	Freq	ARM
CFPB H-25(B)	\$162k / 3.875% / 30yr	30/360	RE	HU	M	M	—
eCampus §4.4.1 T1	\$297.5k / 3.8% / 3yr, 20yr amort	30/360	RE	HU	j ₂	Q	—
eCampus §4.4.1 renew	\$265.8k / 2.5% / 17yr	30/360	RE	HU	j ₂	Q	—
FNMA §1103	\$25M / 5.5% / 10yr, 30yr amort	A/360	RE	HU	M	M	—
Geltner Ch 20	\$1M / 12% / 30yr	30/360	CP	HU	M	M	—
Goldstein §10.3	\$563 / 12% / 5mo	30/360	CP	HU	M	M	—
Las Positas §8.05 Ex 1	\$15k / 9% / 5yr	30/360	RE	UP	M	M	—
Las Positas §8.05 Ex 3	\$18k / 2% / 5yr	30/360	RE	UP	M	M	—
MS State P3920	\$100k / 7% / 30yr	30/360	RE	HU	M	M	—
Olivier Chans T1	\$350.1k / 4.9% / 3yr, 20yr amort	30/360	RE	HU	j ₂	M	—
Olivier Chans renew	\$316.6k / 5.85% / 17yr	30/360	RE	HU	j ₂	M	—
OpenStax §6.12.110	\$132.7k / 4.8% / 30yr	30/360	RE	UP	M	M	—
OpenStax AK 6.100.1	\$18.3k / 6.75% / 4yr	30/360	RE	UP	M	M	—
OpenStax AK 6.100.2	\$41.6k / 3.9% / 6yr	30/360	RE	UP	M	M	—
OpenStax AK 6.110	\$153.9k / 4.21% / 20yr	30/360	RE	UP	M	M	—
OpenStax AK 6.114	\$159.2k / 5.75% / 30yr	30/360	RE	UP	M	M	—
OpenStax AK 6.36	\$23.7k / 4.76% / 5yr	30/360	RE	UP	M	M	—
OpenStax AK 6.78.1	\$17.9k / 7.5% / 10yr	30/360	RE	UP	M	M	—
OpenStax AK 6.78.2	\$33.8k / 4.3% / 20yr	30/360	RE	UP	M	M	—
OpenStax §6.8 car	\$28.5k / 3.99% / 5yr	30/360	RE	UP	M	M	—
OpenStax §6.8 home	\$136.7k / 5.75% / 15yr	30/360	RE	UP	M	M	—
ProEducate cap	\$65k / 10% / 30yr	30/360	RE	HU	M	M	1, cap
Reg Z H-14	\$10k / 17.41% / 30yr	30/360	RE	HU	M	M	14
Synthetic HALF_EVEN	\$100k / 4.80% / 30yr	30/360	RE	HU	M	M	—
Synthetic HALF_UP	\$100k / 4.80% / 30yr	30/360	RE	HU	M	M	—
Synthetic ROUND_UP	\$100k / 4.80% / 30yr	30/360	RE	UP	M	M	—
Wikipedia mortgage calc	\$200k / 6.5% / 30yr	30/360	RE	UP	M	M	—

27 fixtures total.

Column codes. Day: 30/360 US residential, A/360 Actual/360 US commercial. Bal: RE round-each-balance, CP carry-precision. Rnd: UP ROUND_UP, HU ROUND_HALF_UP, HE ROUND_HALF_EVEN. Cmp: M monthly, j₂ semi-annual (Canadian *Interest Act* §6), A annual. Freq: M SM BW W Q A (monthly to annual). ARM: count of RateChange entries; cap indicates at least one payment_cap_factor. A dash is fully fixed-rate.

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Synthetic HALF_UP / ROUND_UP / HALF_EVEN. Synthetic boundary case constructed for this library: \$100,001.25 / 4.8% / 30yr is engineered so month-1 unrounded interest equals exactly \$400.005 — a half-cent boundary that distinguishes ROUND_HALF_UP (\$400.01) from ROUND_HALF_EVEN (\$400.00) and from ROUND_UP (which rounds the payment up to \$524.68 instead of \$524.67).