Loan EMI, Annual Cost and Capital Recovery Factor

Equal yearly payment (capital recovery factor) and monthly instalment (EMI) to repay a capital sum over a term at an interest rate, with the total interest paid.

Method: Annuity (capital recovery) formula

Input parameters

Unit system: SI

Parameter	Value	Unit
Capital or loan amount (your currency)	5,000,000	
Interest rate per year	9.0000	%
Term (years)	10.000	

Calculated results

Parameter	Value	Unit
Capital recovery factor (yearly)	0.15582	
Equal yearly payment (your currency)	779,100	
Equal monthly instalment (your currency)	63,338	
Total interest on monthly instalments (your currency)	2,600,546	

Notes for this case

- The monthly instalment uses a monthly rate of one twelfth of the yearly rate, as lenders quote it.

Formula and method

$$CRF = \frac{i\,(1+i)^{n}}{(1+i)^{n}-1} \qquad A = P\,CRF \qquad EMI = P\,\frac{(i/12)(1+i/12)^{12n}}{(1+i/12)^{12n}-1} \qquad I_t = 12n\,EMI - P$$

Variables

P	capital or loan	currency
i	yearly interest rate	–
n	term	years
CRF	capital recovery factor	1/year
A	yearly payment	currency
EMI	monthly instalment	currency
I_t	total interest	currency

Method and standards

Present value of an ordinary annuity solved for the payment.

Assumptions and limits

- Fixed rate; payments at the end of each period.

References

- Annuity (capital recovery) formula

Report details

Report reference	FCC-PGJG-S0G5 (the same inputs always give the same reference)
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Release checks	3 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/general/economics/capital-recovery-factor

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.