

(1) Loan 借貸

$100,000$
 $+500$
 $-1,000$

$100,000 * 0.5\%$

輸入
 本金(p) 100,000
 年利率(R%) 6
 每月還款(A) 1,000

輸出
 月利率(r%) 0.5%
 月息(I) \$500

n 期	P_0 本金	$I = P_0 * r$ 利息	$P_1 = P_0 + I - A$ 新本金	total 累積利息
1	100,000	500	99,500	500
2	99,500	498	98,998	998
3	98,998	495	98,492	1493
4	98,492	492	97,985	1985
...				

列印每月欠款及還款情況，直至全數清還為止

Loan 借貸

Mortgage 按揭

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(2) Mortgage 按揭

輸入

變數	意義		例子 / 公式	
P_0	Principal (Loan Amount)	本金	1,000,000	
R	Interest Rate (%)	年利率	12% per annum	$r = 1\%$ per month
N	Number of years (Loan period)	年期	10	$n = 120$ installments 120期

計算

A	Monthly Repayment Amount	每月供款	$A = \frac{P_0 r (1+r)^n}{(1+r)^n - 1} = \$14,347$
I	Interest	利息	$1,000,000 \times 1\% = 10,000$
P_1	New Principal	新本金	$1,000,000 + 10,000 - 14,347$

Loan 借貸

Mortgage 按揭

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輸出 Sample outputs:

$$n = 120, r = 1\%, A = \$14,347$$

$$1,000,000 * 1\%$$

$$1,000,000 + 10,000 - 14,374$$

n	P ₀ 本金	Interest = P ₀ * r 利息	P ₁ = P ₀ + I - A 新本金	Total Interest paid so far 累積利息
1	1,000,000	10,000	995,653	10,000
2	995,653	9,956	991,262	19,956

3	991,26
4	986,82
5	982,34
...	
120	

公式 Formulae:

Interest = Principal * Interest Rate

年息 = 本金(P_i) × 年利率(R)

月息(I) = 本金(P_i) × 月利率(r)

New Principal

= Principal + Interest - Monthly Repayment Amount

新本金(P_{i+1}) = 上月本金(P_i) + 本月利息(I) - 每月供款(A)

每月供款
Loan 借貸

$$A = \frac{P_0 r (1+r)^n}{(1+r)^n - 1}$$

Mortgage 按揭

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(3) Repayment Amount:

$$P_0 = 10,000$$

每月供款

$$A = \frac{P_0 r (1+r)^n}{(1+r)^n - 1}$$

	10 yr	11 yr	12 yr	13 yr	14 yr
2.00%	92.0	84.5	78.2	72.8	68.3
2.25%	93.1	85.6	79.3	74.0	69.4
2.50%	94.3	86.7	80.5	75.1	70.6
2.75%	95.4	87.9	81.6	76.3	71.8
3.00%	96.6	89.0	82.8	77.5	73.0
3.25%	97.7	90.2	84.0	78.7	74.2
3.50%	98.9	91.4	85.1	79.9	75.4
3.75%	100.1	92.6	86.3	81.1	76.6
4.00%	101.2	93.8			
4.25%	102.4	95.0			
4.50%	103.6	96.2			
4.75%	104.8	97.4			

本金
年利率
年期
月供
利息

Loan Amount (\$1,000,000)
Interest Rate (% per annum)
No. of Years / Months
Monthly Repayment
Total Interest Paid

Loan 借貸

Mortgage 按揭

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