

JAVA CIR2 2014-2015 Assignment

All documents are allowed



How to Calculate Loan Payments

If you know how to calculate a loan payment, you can figure out how much you can afford to borrow for large purchases such as a car or a house. Calculating loan payments ahead of time means that there are no surprises and you can often avoid buyer's remorse.

Calculate a loan payment or amortization schedule manually if you like running the numbers yourself or want to verify the accuracy of an online loan calculator.

The formula is **$M = P * (J / (1 - (1 + J)^{-N}))$**

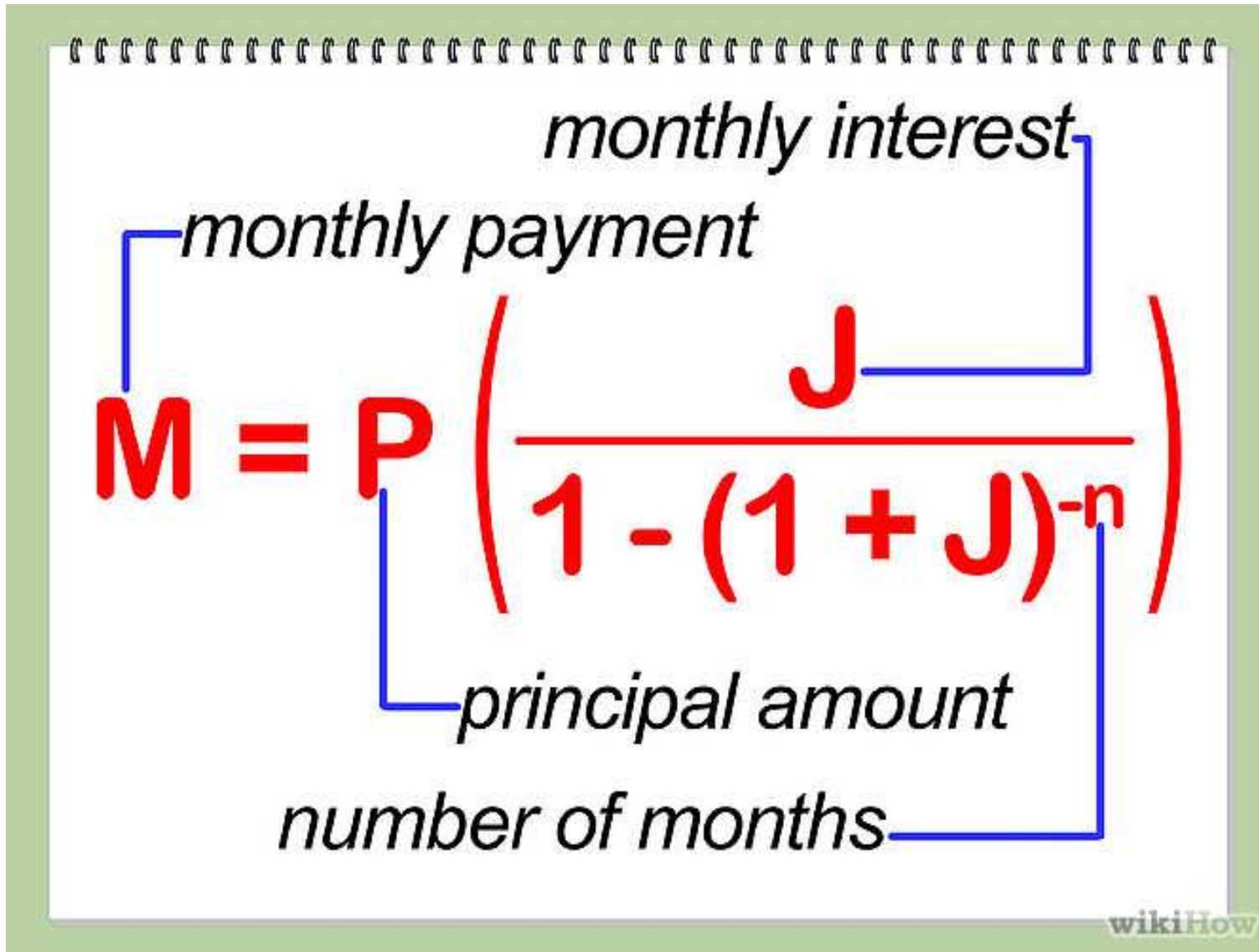
M: monthly payment

P: principal or amount of loan

J: monthly interest;

annual interest divided by 100, then divided by 12.

N: number of months of amortization,
determined by length in years of loan.



The diagram shows the formula for calculating the monthly payment M based on the principal amount P , the monthly interest rate J , and the number of months n . Blue lines connect the labels to their respective variables in the formula.

$$M = P \left(\frac{J}{1 - (1 + J)^{-n}} \right)$$

Labels and their corresponding variables:

- monthly interest* points to J .
- monthly payment* points to M .
- principal amount* points to P .
- number of months* points to n .

wikiHow

A loan for €100,000 for 30 years at 6% annual rate

$$P = 100,000$$

$$J = .005 \text{ (6 divided by 100, then divided by 12)}$$

$$N = 360 \text{ (30 years multiplied by 12)}$$

$$M = 100,000 * (.005 / (1 - (1 + .005)^{-360}))$$

$$M = 100,000 * (.005 / (1 - (1.005)^{-360}))$$

$$M = 100,000 * (.005 / (1 - 0.1660419))$$

$$M = 100,000 * (.005 / .083395)$$

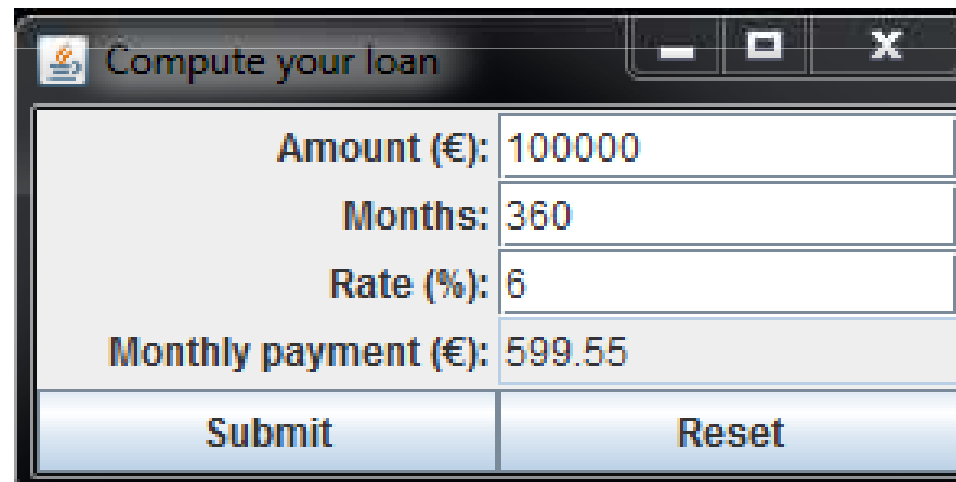
$$M = 100,000 * .0059955$$

$$\mathbf{M = €599.55}$$



Assignment:

You have to develop a java application in order to compute the monthly payment of a given loan.



The screenshot shows a Java application window titled "Compute your loan". It contains four input fields for loan parameters and one output field for the result, along with two buttons at the bottom.

| | |
|----------------------|--------|
| Amount (€): | 100000 |
| Months: | 360 |
| Rate (%): | 6 |
| Monthly payment (€): | 599.55 |

Submit Reset

We advise you to pay attention to the following classes: Double, Integer, Math, JTextField, JLabel

In your report you will explain your reasoning and your design. Remember to describe your tests if available. If you use external resources you have to mention references to these resources in your report.

By the end of this work you are required to upload your report and source code on the Intranet (only one archive file: zip or rar format)

You are allowed to write your report in French.

Good luck!

References

<http://www.wikihow.com/Calculate-Loan-Payments>

<http://www.cbanque.com/credit/principe.php>

