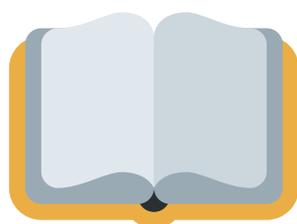


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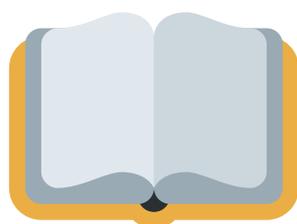
Mathematical economics are not separate branches of economy such as public finances or international trade. It is an approach to economic analysis. The biggest difference between the mathematical economy and the explicit economy is that in the foregoing assumptions and the conclusions they are in the form of mathematical symbols, and not the words are still used in mathematical theorems in the process of resonance. The advantage of the mathematical model is the following: The language we use is more precise and concise; The full wealth of mathematical theorems is available to us; We are here to list all our assumptions explicitly; We can devote ourselves to a general case with n -variables. Mathematical language has become dominant in many spheres of economy: 10-percent increase in crude oil prices leads to a 5 percent drop in gasoline sales (unfortunately) and more than well known! Although the economy is a social science, the difference between the social and scientific aspect of this science is smaller and smaller. The term mathematical economy is often mixed with econometrics. This is not the exact assumption. Econometrics are mostly concerned with the measurement of economic data, while the mathematical economy gives the manipulation tools the same.

Financial mathematics deals with solving economic and social problems by applying a percentage and complex interest rate calculation. First we introduce the basic concepts and then explain how some problems are solved by financial math, such as a rent account, loan repayment, consumer credit, etc. The creditor or lender is a banking institution, legal or natural person who has lent money to another banking institution, legal or physical person. A debtor is a banking institution, a legal or natural person



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who has borrowed money from another financial institution, legal or natural person. A creditor on borrowed money calculates and charges interest from the debtor, while the borrower borrows money to pay the lender interest. The remuneration that the debtor pays for the use of borrowed money by the creditor on the basis of legal regulations or contracts is called interest. The amount of interest per 100 units of debt for a time unit (usually a calendar year) is called the interest rate. The time unit referred to as the interest rate calculation is called a time unit or unit period. In practice, the calendar time unit uses the calendar year, half-year, quarter (quarter), month, and even day. The interest rate is negotiated between the creditor and the borrower for a certain time unit, which is usually a year, and a constant or variable interest rate can be agreed upon. There are two basic ways of calculating interest: (1) the interest rate calculation at the end of the unit period in relation to the principal from the beginning of that accounting period, which is called the decursive method of interest calculation; and (2) the interest rate calculation at the beginning of the unit period in relation to the principal from the end of the accounting period, which we call the anticipatory method of interest calculation. Usually, we use the decursive method of interest calculation. In the case of an anticipated method of interest calculation, interest is calculated at the beginning of the unit period on the principal (loan amount) at the anticipated interest rate q , whereby the borrower immediately pays interest, and at the end of the unit period is obliged to repay the principal while in the case of the decursive method of interest calculation, interest rates are also charged on principal but at the destination of interest rate p , and are paid at the end unit period together with the principal. Interest account in



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which interest is charged to the same principal in we call it a simple interest rate account for the whole period of consolidation. A compound interest rate with a floating interest is the calculation of interest rates in such a way that, at the end of the first unit period, the principal adds interest for that unit period; At the end of the second unit period, the interest rates for the unit period are calculated, with the interest rate calculating principal being multiplied by interest from the first unit period, at the end of the third unit period the interest on the principal increased by interest from the first and second unit period , etc. In an analogous way, it is done until the interest rates are calculated for the nth unit period.

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