The Present Value of an Ordinary Annuity

Date:

An ***annuity*** is a sequence of equal payments made at equally spaced intervals of time.

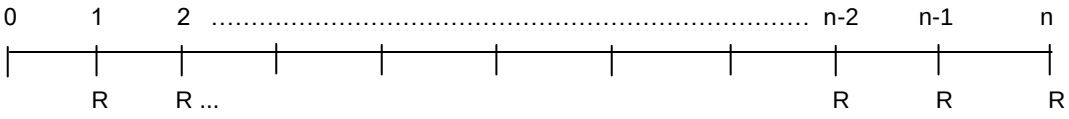
The ***period of an annuity*** is the time interval between two consecutive payments.

The ***term of an annuity*** is the total time involved in completing the annuity.

Ordinary annuities have payments made at the end of the payment period.

PV: the present value of the annuity
R: Regular payment
i: the adjusted interest rate (interest per annum ÷ the number of compounding periods in a year)
n: Number of payments in total

We will use a ***timeline*** to visualize the money in an annuity and derive a formula for the present value of an ordinary annuity after *n* compounding periods.



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Ex. Michael wants to invest so that he can withdraw $2000 at the end of each quarter for 5 years. The first payment is due at the end of the next quarter and he can earn 3% compounded quarterly. How much does he have to invest now?

Ex. Mr. Shim wants to donate $10 000 to create a scholarship that will be awarded at the end of the year for 8 years. If he invests at the beginning of the school year earning 6% compounded annually, how much will the scholarship be every year?