

2.4 Ordinary Annuities

Exercises

1. How much should be deposited in a bank today at 10%, compounded quarterly, in order to receive a payment of 3,000 € each quarter for the next 16 years?
2. An amount of 200,000 € is deposited at 10%, compounded quarterly. What size withdrawals can be made at the end of each quarter for the next 9 years?
3. In the exercise from the slide presentation, calculate the value of the last (uncomplete) payment remained to be paid after the 26-th period?
4. An amount of 100,000 € is invested at 7%, compounded annually. Calculate how many payments of 8,000 € can be received at the end of each year.
5. An amount of 14,100 € is deposited in a bank at 8%, compounded quarterly. Calculate how many payments of 6,000 € can be received at the end of each quarter.
6. How much should be deposited in a bank today at $p\%$, compounded annually, in order to receive a payment of size R € at the end of each year for the next $n - 1$ years, and receive an uncomplete payment of size R' € ($R' < R$) at the end of the last year?
7. How much should be deposited at 6%, compounded quarterly, at the beginning of each year for 12 years in order to withdraw 4,000 € at the end of each year for the next 15 years?
8. A retiree inherits 93,000 € and invests it at 6.6%, compounded monthly, in an ordinary annuity that provides a monthly amount for the next 12 years. Find the monthly amount.
9. Juanita's parents want to establish a study trust for her. They want to make 16 quarterly withdrawals of 2,000 €, with the first withdrawal 3 months from now. If money is worth 7.2%, compounded quarterly, how much must be deposited now to provide for this trust?

10. Parents deposit 1,000 € at 5%, compounded annually, at the beginning of each year starting from the birthday of their child till the age of 25, in order that the son receives payments at the end of each year starting from age 30 for the next 25 years. What is the size of the payment?
11. A person wants to substitute payments of 3,330€ that she was supposed to receive at the end of each year for 30 years with higher payments which she will receive at the end of each year for 20 years. What is the size of the new payments if money is worth 5%, compounded annually?
12. Parents agree to invest 500 € for their daughter (at 10%, compounded semiannually) on the December 31 or June 30 following each semester that he makes the Dean's list during his 4 years at university. If he makes the Dean's list in each of the 8 semesters, how much money will his parents have to give him when he graduates?
13. How much will have to be invested at the end of each year at 10%, compounded annually, to pay off a debt of 50,000 € in 8 years?
14. How much will have to be invested at the end of each year at 12%, compounded annually, to pay off a debt of 30,000 € in 6 years?