



FV, PV of growing annuity and present value of perpetuity and growing perpetuity

1. You are going to start saving for your children's future studies. This year you will be able to save 5 thousand CZK. This amount will increase by 4% each year according to your calculations. The alternative cost is 8%. How much will you save in 15 years?
2. What is the present value of your inheritance if your trustee is obliged to pay you a yearly starting amount of 10% annually starting this year for 10 years, while this year you will be paid 20 thousand USD (right now). We assume alternative costs of 11%.
3. You started saving for retirement this year. You are going to deposit 2% of your annual income every year, which is 150 thousand CZK and will grow by 4% each year for the duration of your employment. You anticipate 8% savings per year. What amount will you have if you retire in 40 years?
4. What amount of funds will you dispose of in 2028, if you save 40 thousand CZK and next year by 4% more? While you will stop saving in 2026, the money will be left in your account. Your account bears an interest rate of 6% p.a.
5. The couple saved up 1.5 million CZK. They want to use this money annually during their retirement over 20 years. The interest rate of such savings is 10% p.a. How much can they spend next year if they want to increase the drawn amount by 5% each year?
6. What is the present value of your heritage? Since this year, you will obtain a certain amount each year for 10 years. This year it is 25 000, - CZK and every next year by 10% more. The alternative cost is 12%.
7. Calculate the market price of the share if the alternative cost is 5% and this year's dividend is 100 CZK per share. The company's dividend policy is stable.
8. What is the market price of a share if DPS a) was 100 CZK this year; b) will be 100 CZK. Do we expect PCBs to increase by 10% each year and alternative costs of 15%?
9. What is the market price of a share if the dividend per share (DPS) was CZK 100 per share last year? Do we expect PCBs to increase by 10% each year and alternative costs of 15% this year and beyond?
10. The company decided to pay a dividend of CZK 400 per share next year, with the dividend increasing by 4% per year. What is the current value of dividend income if the interest rate is 14%.



11. What should be the market value of one share of the company, if the expected profit this year is 5 million CZK, the company has 10 thousand of outstanding shares and shareholders will pay 50% of earnings in the form of dividends? The expected annual increase in profit is 5%. The alternative cost is 12%.
12. You own the land you rent for an indefinite period (forever). The land yield will increase annually by 5%. If the cash flow in the first year is CZK 10,000 and the interest rate is 10%, what is the value of the land?
13. **SINCE** next year, you intend to deposit a certain amount each year up to 2024 (including this year as well as 2024). Then you want to withdraw CZK 12,000 each year from your account during the following years (2025 - 2041). If your account bears 2% p.a., how much do you have to deposit?
14. **SINCE** next year, you intend to deposit a certain amount each year up to 2024 (including this year as well as 2024). This year it will be 10 000, - CZK and every next year by 2% more. During the following years (2025 - 2030), how much will you be able to withdraw from your account each year? The account bears 3% p.a.
15. You have won CZK 1 million in the lottery and you will save your winnings to the bank today. You will add CZK 100,000 annually to the same account for 10 years between 2021 and 2030. How much will you have in your account at the beginning of 2050? The account bears 3% p.a. at a monthly basis.