

Lesson 17 — Investing rates

Problem 1 (Simple interest)

Suppose you borrow \$875 for a term of four years at simple interest and 4.28% APR. How much is the total (principal plus interest) you must pay back on the loan?

Problem 2

Suppose you purchase a 15-year U.S. savings bond with an APR of 4%. The face value of the bond (at the time of maturation) is \$8000. Find the purchase price of the bond.

Problem 3 (Compound interest)

Find the future value of an investment of $P = \$1237.50$ compounded annually with a 8.25% APR for a term of three years.

Problem 4

Between 1990 and 2010 the average annual inflation rate was 3.5%. Find the salary in 2010 dollars that would be equivalent to a \$25,000 salary in 1990.

Problem 5

Between 2000 and 2011 the average annual inflation rate was 3%. Find the salary in 2000 dollars that would be equivalent to a \$50,000 salary in 2011.

Problem 6

A credit card offers an APR of 18%. What is its effective annual rate (EAR)?

Problem 7

Consider a CD paying a 3% APR compounded monthly.

- (a) Find the periodic (monthly) interest rate.
- (b) Find the future value of the CD if you invest \$1580 for a term of three years. (I.e. you leave \$1580 alone in a CD for three years.)

Problem 8 (reinvestment)

Find the value of a retirement savings account paying an APR of 5.4% after 40 years (contributions made at the end of each year, including the last year) when the annual contribution is \$1200.