

Introduction to Finance

Problem Set 2

Question 1

You expect to have \$8,000 in one year. A bank is offering loans at 4.5% interest per year. How much can you borrow today?

Question 2

Qualcomm has developed a groundbreaking new CPU chip. The patent on the chip will last 17 years. You expect the chip's profits to be \$4 million in its first year and this amount to grow at 5% per year over the patent's 17-year life. Once the patent expires, Intel will be able to produce the same chip and competition will likely drive profits to zero. What is the present value of the new chip if the interest rate is 8% per year?

Question 3

Assume that Social Security promises you \$50,000 per year starting when you retire 45 years from today (the first \$50,000 will be paid 45 years from now). If your discount rate is 4%, compounded annually, and you plan to live for 17 years after retiring (so that you will receive 18 payments including the first one), what is the value today of Social Security's promise?

Question 4

Your cousin is currently 13 years old and will go to college in 5 years. Your aunt and uncle would like to have \$95,000 in a savings account to fund her education at that time. If the account promises a fixed interest rate of 3.7% per year, how much money must they put into the account today?