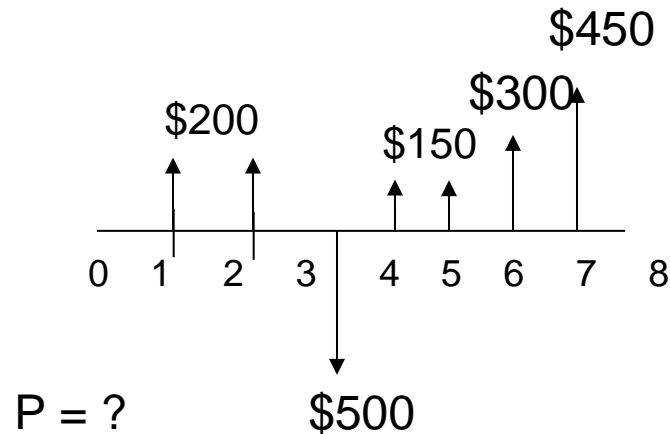


Finding Present Value for a Series of Cash Flows Excel Lab

Exercise 1 – Find the present value for the following cash flow (assume $i = 8\%$).



- a) Break the cash flow up and evaluate it as you would if you were doing it by hand using the PV function.
- b) Use the NPV method for the series of cash flows.

Exercise 2 – A new home buyer has just purchased a home for \$110,000 with a 30-year loan at an interest rate of 5.875% per year.

- a) What is the monthly mortgage payment for this loan? What is the future value of the loan when it is paid off?

- b) The home owner plans to add an extra \$100 each month to her mortgage payment. If she does this consistently, when will the loan be paid off? Now what will be the future value of the loan when it is paid off?

- c) How much extra should the homeowner pay each month in order to pay the loan off in 20 years?

Finding Present Value for a Series of Cash Flows
Excel Lab – cont.

Exercise 3 – Use Excel to find the future value (F) at the end of period 9 for the above cash flow from exercise 1 (assume $i = 8\%$).

Exercise 4 – Use Excel to find the annual worth (A) over the seven period cash flow from exercise 1 (assume $i = 8\%$).

Exercise 5 – A new graduate, 22 at the time he starts his first job out of college, is planning on saving for retirement in 40 years. He believes he will be able to live comfortably in retirement on the equivalent of a \$50,000 per year salary today.

- a) Assuming an inflation rate of 3%, what will be the equivalent in 40 years of a yearly salary of \$50,000 today? If the graduate plans to live 30 years after he retires, what will be the equivalent annual salary in each of those years? Create the cash flow diagram, starting with the equivalent salary at the end of year 41 and continuing with the equivalent yearly salary at 3% inflation through year 70.

- b) Find the equivalent single amount in year 40 (again, at an interest rate of 3%). If the graduate will invest in a retirement account that pays a rate of 9% per year, how much will he need to invest each year to accumulate the amount he needs in year 40 to meet his retirement needs for 30 years? (Note: for simplicity, assume the retirement account earns no interest once the graduate retires.)

- c) If the graduate decides to invest only $\frac{1}{2}$ of the amount calculated in part b per year for the first 10 years, how much will he accumulate in his account by year 40? If he chooses to invest \$100 more than what is required per year for the first 10 years how much will he accumulate? Again, assume an interest rate of 9%.