

Annuity Assignment

Please show your work!

- 1) First, let's go back to a previous type of problem. Suppose you invest \$2,000 at the beginning of each year for 4 years into an account that pays 5% compounded yearly. Remember, you need to handle each of the four investments separately. The first one gets four years of interest, the second one three years, etc. How much money will you have at the end of the fourth year?

There is a formula that will do this for you:

$$FV = pymt * \frac{(1+i)^n - 1}{i} * (1+i)$$

- 2) Confirm your answer in problem number 1 by using the formula above. Note that "i" will be .05 and "pymt" will be \$2,000.
- 3) If you deposit \$3,000 every year into an account bearing 6% interest, compounded annually, what is the value of the investment at the end of the 12th year?
- 4) If you deposit \$2,000 every year into an account bearing 4% interest, compounded annually, what is the value of the investment at the end of the 45th year?

- 5) If you start saving the day you turn 22 by depositing \$4,000 on each birthday into an account bearing 7% interest, how much money will you have the day before you turn 65? In other words, your last deposit is the day you turned 64.
- 6) How much would you have in the problem above if you wait until you turn 35?
- 7) Suppose you want to have one million dollars by the time you retire. You wish to do this by depositing an annuity for 40 years into an account bearing 5% interest. How much will you need to deposit each year?