The Time Value of Money

Physics and Mathematics of Sustainable Energy

College of the Atlantic

1. You have $10,000 that you put in a bank account that gets two percent interest.

   (a) How much money will you have in five years?
   (b) How much money will you have in ten years?

2. In 15 years you wish to have $20,000 to use as a down payment for a house. How much money should you deposit in a bank today in order to achieve this goal?

   (a) Assume an interest rate of 3 percent.
   (b) Assume an interest rate of 5 percent.

3. Suppose that in fifty years someone will give you a million dollars. What is the present value of this gift?

---

4. You are considering an investment that will pay you $2000 for the next three years. For this problem, assume a discount rate of 3%.

   (a) In one year you will receive a payment of $2000. What is the present value of this payment?
   (b) In two years you will receive another payment of $2000. What is the present value of this payment?
   (c) In three years you will receive yet another payment of $2000. What is the present value of this payment?
   (d) What is the total present value of all three of these payments?

5. Repeat problem 4 using a discount rate of 5%.

6. Repeat problem 4 using a discount rate of 7%.

Year	$r = 0.03$	$r = 0.05$	$r = 0.07$
1			
2			
3			
TOTAL			

7. Would you buy the investment described in problem 4 for \$5700? For \$5000?