

1. Find the present value of \$10000, twenty years from now. Assume an annual compound interest rate of 6%, compounded
 - (a) monthly
 - (b) continuously.
2. We wish to buy a used car for \$5000. The dealership has a finance plan of \$500 down payment and 36 monthly payments with an APR of 6%. Find the monthly payment under this plan.
3. We wish to buy a used car for \$7500. The dealership has a finance plan of \$500 down payment and 48 monthly payments of \$161.20. Find the APR that the bank charges.
4. We roll a dice. If the number rolled is even, we pay \$6. If the number rolled is odd, we receive the square of the number rolled. For example, a roll of 3 means that we receive \$25. Find the expected value of this game.
5. We have 15 marbles in a bag: 9 blue, 5 green, and 1 yellow. We randomly pull two marbles, without replacement. Find the probability of each of the following events.
 - (a) We pull two marbles of different colors.
 - (b) We pull at least one green marble.
6. We have 15 marbles in a bag: 9 blue, 5 green, and 1 yellow. We randomly pull two marbles, with replacement. Find the probability of each of the following events.
 - (a) We pull two marbles of the same color.
 - (b) We pull at least one green marble.
7. There is five decks of cards (each standard 52) on the table. We pull one card from each deck. What is the probability that we end up with
 - (a) exactly 3 hearts in our hands.
 - (b) at least 3 hearts in our hands.