

- Find the present value of \$10000, twenty years from now. Assume an annual compound interest rate of 6%, compounded
 - monthly. $\$3020.96$
 - continuously. $\$3011.94$
- 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. $\$136.90$
- 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. 5%
- 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. $\frac{17}{6} = 2.8\bar{3}$
- 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.
 - We pull two marbles of different colors. $\frac{59}{105}$
 - We pull at least one green marble. $\frac{4}{7}$
- 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.
 - We pull two marbles of the same color. $\frac{107}{225}$
 - We pull at least one green marble. $\frac{5}{9}$
- 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
 - exactly 3 hearts in our hands. $\binom{5}{3} \left(\frac{1}{4}\right)^3 \left(\frac{3}{4}\right)^2 = \frac{45}{512}$
 - at least 3 hearts in our hands. $\binom{5}{3} \left(\frac{1}{4}\right)^3 \left(\frac{3}{4}\right)^2 + \binom{5}{4} \left(\frac{1}{4}\right)^4 \left(\frac{3}{4}\right)^1 + \binom{5}{5} \left(\frac{1}{4}\right)^5 = \frac{53}{512}$