

1. A fair die is rolled. The number (of dots) displayed on the top face of the die is noted.
  - (a) Create a probability distribution for the number displayed on the top face of the die.
  - (b) Determine the expected value for the number displayed on the top face of the die.
  
2. A pair of fair dice is rolled. The number (of dots) displayed on the top face of each die is noted.
  - (a) Create a probability distribution for sum of the numbers displayed on the top face of each die.
  - (b) Determine the expected value for the sum of the numbers displayed on the top face of each die.
  
3. Create a probability distribution for the toss of a fair coin.
  
4. Create a probability distribution for the number heads for the toss of a fair coin.
  
5. Create a probability distribution for the number of heads for the toss of two fair coins.
  
6. Create a probability distribution for the number of tails for the toss of three fair coins.
  
7. A raffle has four prizes, a first prize of \$500, a second prize of \$200, two third prizes of \$50 each, and three fourth prizes of \$10 each. Suppose 1000 tickets are sold for \$1 each.
  - (a) Create a probability distribution for the prize that someone who buys one ticket may win.
  - (b) Create a probability distribution for the possible winnings for someone who buys one ticket.
  - (c) Determine the expected prize for someone who buys one ticket.
  - (d) Determine the expected winnings for someone who buys one ticket.
  
8. A raffle has a \$1000 grand prize as well as four other types of prizes, a first prize of \$500, two second prizes of \$200, three third prizes of \$75 each, and four fourth prizes of \$25 each. Suppose 10,000 tickets are sold for \$5 each.
  - (a) Create a probability distribution for the prize that someone who buys one ticket may win.
  - (b) Create a probability distribution for the possible winnings for someone who buys one ticket.
  - (c) Determine the expected prize for someone who buys one ticket.
  - (d) Determine the expected winnings for someone who buys one ticket.