1. A player tosses a fair die. If a prime number, 2, 3, or 5, occurs, the player wins the number of dollars, but if a nonprime number occurs the player loses that number of dollars. Is the game in favour of the player?

2. A box contains eight light bulbs of which three are defective. A bulb is selected from the box and tested. If it is defective, another bulb is selected and tested, until a non defective bulb is chosen. Find the expected number E of bulbs chosen.

3. A fair die is tossed. Let X denote twice the number appearing, and let Y be 1 or 3 according as an odd or even number appears. Find the distribution and expectation of
   (a) X
   (b) Y

4. Suppose X is the normal distribution N(70, 4). Find
   (a) P[68 <= X <= 74]
   (b) P[72 <= X <= 75]
   (c) P[63 <= X <= 68]
   (d) P[X >= 73]