

**Lecture Examples**

**Ex 1** You roll a six-sided die twice.

(a) What is the sample space?

(b) What is the set corresponding to the event “the sum of the die is a 9?”

(c) What is the probability of rolling a sum of 9?

(d) What are the odds of rolling a sum of 9?

(e) What is the probability of rolling a sum of 12?

(f) What is the probability of rolling a sum of at least 10?

**On-Your-Own Examples**

**Ex 1** A sock drawer is filled with assorted striped, patterned, and solid color socks. There are 6 pairs of striped socks, 8 pairs of patterned socks, and 7 pairs of solid color socks. The socks are not matched up and a single sock is drawn at random from the drawer.

- (a) What is the sample space?
  
  
  
  
  
- (b) What is the probability that a striped sock is drawn?
  
  
  
  
  
- (c) What are the odds of a striped sock being drawn?
  
  
  
  
  
- (d) What is the probability that the sock drawn is not solid?

**Ex 2** A six-sided die is tossed twice.

- (a) What is the sample space?
  
  
  
  
  
  
  
  
  
  
- (b) Find the event “an even number is tossed and then an odd number.”
  
  
  
  
  
  
  
  
  
  
- (c) Find the probability of rolling a six twice.
  
  
  
  
  
  
  
  
  
  
- (d) How likely is it that the first number is even?
  
  
  
  
  
  
  
  
  
  
- (e) What are the odds that the first number is a six?

(f) Find the event that the sum is 7.

(g) Find the probability that the sum is 7.

(h) Find the odds that the sum is 7.

**Ex 3** A computer randomly arranges the letters in the word SUMMER. How likely is it that the random arrangement spells REMMUS?

**Ex 4** If the odds of an event  $E$  are  $2 : 7$ , i.e.  $o(E) = 2 : 7$ , what is  $p(E)$ ?

**Ex 5** A family is planning to have four children. (Assume that boys and girls are equally likely).

(a) What is the probability that all four children are boys?

(b) What is the probability that at least three of the children are girls?

(c) What is the probability that at least one child is a girl?

(d) What are the odds that at least one child is a girl?

(e) What is the likelihood that the family has two boys and then two girls?

(f) What is the likelihood that the family has two boys and two girls?