

Section 8.7 Probability

Objective: In this lesson you learned how to find the probability of events and their complements.

Course Number

Instructor

Date

Important Vocabulary

Define each term or concept.

Independent events

Complement of an event

I. The Probability of an Event (Pages 637–640)

Any happening whose result is uncertain is called a(n) _____ . The possible results of the experiment are _____ , the set of all possible outcomes of the experiment is the _____ of the experiment, and any subcollection of a sample space is a(n) _____ .

To calculate the probability of an event, . . .

If an event E has $n(E)$ equally likely outcomes and its sample space S has $n(S)$ equally likely outcomes, the **probability** of event E is given by _____ .

The probability of an event must be between _____ and _____ .

If $P(E) = 0$, the event E _____ occur, and E is called a(n) _____ event. If $P(E) = 1$, the event E _____ occur, and E is called a(n) _____ event.

Example 1: A box contains 3 red marbles, 5 black marbles, and 2 yellow marbles. If a marble is selected at random from the box, what is the probability that it is yellow?

What you should learn

How to find probabilities of events

II. Mutually Exclusive Events (Pages 641–642)

Two events A and B (from the same sample space) are _____ if A and B have no outcomes in common.

If A and B are events in the same sample space, the probability of A or B occurring is given by $P(A \cup B) =$ _____.

To find the probability that one or the other of two mutually exclusive events will occur, . . .

Example 2: A box contains 3 red marbles, 5 black marbles, and 2 yellow marbles. If a marble is selected at random from the box, what is the probability that it is either red or black?

What you should learn
How to find probabilities of mutually exclusive events

III. Independent Events (Page 643)

If A and B are **independent events**, the probability that both A and B will occur is $P(A \text{ and } B) =$ _____.

That is, to find the probability that two independent events will occur, . . .

Example 3: A box contains 3 red marbles, 5 black marbles, and 2 yellow marbles. If two marbles are randomly selected with replacement, what is the probability that both marbles are yellow?

What you should learn
How to find probabilities of independent events

IV. The Complement of an Event (Page 644)

Let A be an event and let A' be its complement. If the probability of A is $P(A)$, the probability of the complement is $P(A') =$ _____.

What you should learn
How to find probabilities of complements of events

Homework Assignment

Page(s)

Exercises