Math 1324
Section 6.5 Part 2
Independent Events

The videos corresponding to this worksheet can be found at
https://online.math.uh.edu/Math1324/.
UH students can also view the videos within the Math 1324 textbook.

Math 1324
Independent Events

Basic Information

In this lesson, you will learn how to determine if two events are independent.

Definition: Independent Events

Two events A and B are independent if and only if $P(A \cap B) = P(A) \cdot P(B)$.

Note: Do not confuse the terms independent events and mutually exclusive events. Events are independent if they meet this definition and this has to do with whether and how the occurrence of one event affects the probability of the other. Mutually exclusive events have to do with whether or not the events can occur at the same time.

Two events may not be mutually exclusive but can still be independent.

Example 1

Example 1: Suppose an experiment consists of drawing a card from a well-shuffled deck of 52 playing cards. Determine if the two events given are independent.

A = the event of drawing a face card
B = the event of drawing a heart

C = the event of drawing a heart
D = the event of drawing a club

E = the event of drawing a king
F = the event of drawing a red card

Example 2

Example 2: In a survey of 1000 men, 450 had high blood pressure, 320 had high cholesterol and 145 had both. Let A be the event that a man surveyed had high blood pressure and let B be the event that a man surveyed had high cholesterol. Are the events A and B independent?

Example 3

Example 3: Two events, A and B, are independent. P(A) = 0.64 and P(B) = 0.24. Find $P(A \cup B)$.