PROBABILITIES OF ANDs

<u>Ex 13:</u>

Experiment

  Draw a single ball from the bag →

Events

  A = You draw a ball with an even
       number on it

  B = You draw a ball with a prime
       number on it
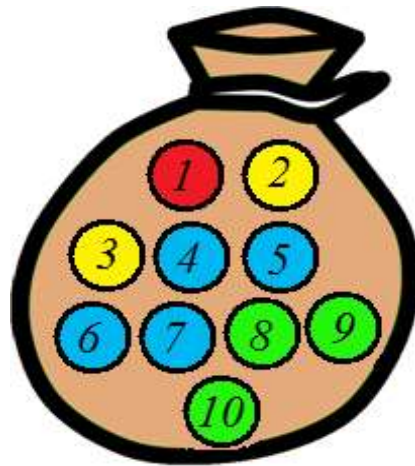
  C = You draw a yellow ball

  D = You draw a ball that is both blue and even

  E = You draw a ball with a number larger than 6 on it

  F = You draw a ball that is both less than 7 and odd

Find

  $P(A \cap C), P(B \cap E)$

<u>Ex 14:</u>

Experiment

  Draw 2 balls from the bag one by
  one with replacement

Events

    R_i = The ith ball drawn is red
    Y_i = The ith ball drawn is yellow
    B_i = The ith ball drawn is blue
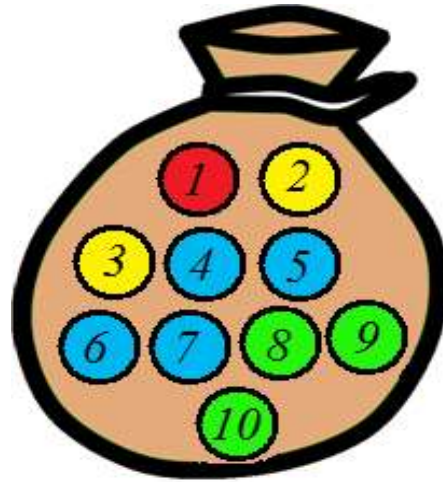 G_i = The ith ball drawn is green
    E_i = The ith ball drawn is even
    O_i = The ith ball drawn is odd

Find

    $P(R_2 \cap R_1)$, $P(B_1 \cap G_2)$, $P(G_1 \cap Y_2 \cap B_3 \cap B_4)$

Ex 15:

Experiment
Draw 2 balls from the bag one by
one without replacement

Events
R_i = The ith ball drawn is red
Y_i = The ith ball drawn is yellow
B_i = The ith ball drawn is blue
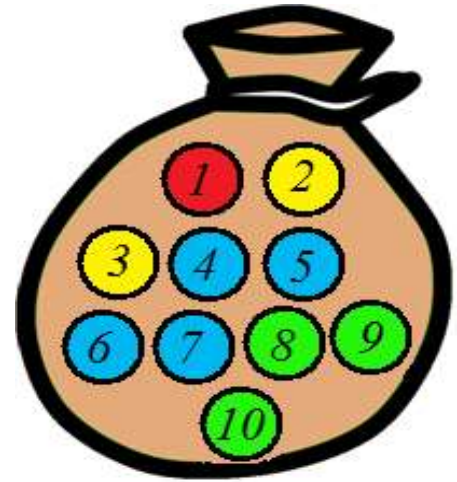G_i = The ith ball drawn is green
E_i = The ith ball drawn is even
O_i = The ith ball drawn is odd

Find
$P(R_2 \cap R_1)$, $P(B_1 \cap G_2)$, $P(B_1 \cap B_2)$,
$P(G_1 \cap Y_2 \cap B_3 \cap B_4)$

Ex 16:

Experiment
  Draw 3 balls from the bag one by
  one without replacement

Events
  R_i = The ith ball drawn is red
  Y_i = The ith ball drawn is yellow
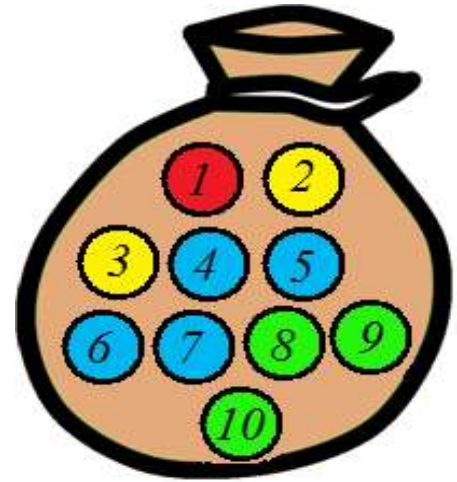 B_i = The ith ball drawn is blue
  G_i = The ith ball drawn is green
  E_i = The ith ball drawn is even
  O_i = The ith ball drawn is odd

Find
  a) The probability that all of the selected balls are blue
  b) The probability that none of the selected balls are blue

<u>Ex 17:</u>
Experiment
  Draw a single card from a standard poker deck
Events
  A = Draw a heart
  B = Draw a black card
  C = Draw a red face card
  D = Draw a king
  E = Draw a card that has a number on it that is less than 5
Find
  $P(D \cap B)$

Ex 18: A detective is trying to solve a murder case. At the outset of his investigation he knows that the murderer is one of the 200 people in the following table.

	Murder Suspects	City of Residence		
		Montebello	Pico Rivera	Total
Gender	Male	105	35	140
	Female	45	15	60
	Total	150	50	200

Question:
What is the probability that the murdered is female and from Montebello?

PROBABILITIES OF NOTs

<u>Ex 19:</u>
Experiment
  Play a single game of roulette
Events
  A = The ball lands in an odd slot
  B = The ball lands in a red slot
  C = The ball lands in a green slot
  D = The ball lands on a number that is a multiple of 3
  E = The ball lands in a slot that is part of the 1st 12 bet
  F = The ball lands in a slot that is part of the 3rd 12 bet and is
      a black number
  G = The ball lands on a number that is part of the 2nd column
Find
  $P(\bar{A}), P(\bar{C})$

PROBABILITIES OF AT LEAST ONEs

<u>Ex 15:</u>
Experiment
  Play a single game of roulette 3 times
Question:
  What is the probability that at least one of the spins resulted in a ball landing in a green slot?

Ex 16:
Experiment
  Draw 2 balls from the bag one by
  one without replacement
Questions:
a) What is the probability that at
least one of the balls drawn from the
bag is blue?
b) What is the probability that at
least one of the balls drawn from the bag is red?
c) What is the probability that at least one of the balls drawn from the bag is prime?