**Name: _____**

# Mutually Exclusive Events

**Exercise 1:** One student's name will be picked at random to win a CD player.  There are 12 male seniors, 15 female seniors, 10 male juniors, 5 female juniors, 2 male sophomores, 4 female sophomores, 11 male freshmen and 12 female freshmen.
Find the probability that:

1) A senior or a junior is picked
2) A freshman or a female is picked

**Exercise 2:** You are picking one card from a standard deck of playing cards.  Find the probability that you pick:

1) A jack.
2) A heart or club.
3) A red or a face
4) A black or a red
5) An ace or a face
6) An ace or a spade

**Exercise 3:** A typical roulette wheel has 38 slots that are numbered 1, 2, 3,..., 34, 35, 36, 0, and 00. The 0 and 00 slots are green. Of the remaining slots, half are red and half are black. Also half of the integers from 1 to 36 are even and half are odd. 0 and 00 are defined as neither even nor odd. A ball is rolled around the wheel and ends up in one of the slots. We assume that each slot has an equal chance.
1) What is the probability of each slot?
2) What is the probability of the ball landing in a green slot? A red slot? A black slot?
3) What is the probability of the ball landing on an even number?
4) What is the probability of getting a 1, 12, 24, or 36?

**Exercise 4:** A card is drawn at random from a deck. What is the probability that it is an ace or a king?

**Exercise 5:** A card is drawn at random from a deck. What is the probability it is a red card, an ace, or both?

**Exercise 6:** Two cards are drawn from a deck (without replacement). What is the probability of having two diamonds?

**Exercise 7:** Assume that we tossed two fair dice. Consider the following events: $A$ = sum is 7 or more, $B$ = sum is even, $C$ = sum is 7, and $D$ = sum is less than 11. Find
   (a) $P(A \ or \ B)$
   (b) $P(A \ or \ C)$
   (c) $P(A \ or \ D)$