Mutually Exclusive and Independent Events Worksheet

1. Determine whether the following events are mutually exclusive.
   a. Draw one card from a deck of 52 playing cards: get an Ace; get a Spade_____
   b. Draw one card from a deck of 52 playing cards: get a Spade; get a Diamond _____
   c. Roll one die: get a prime number (2, 3, 5); get an odd number _____
   d. Roll one die: get a number that is a multiple of 3; get a number that is a multiple of 2 ___
   e. Select one registered voter: get a Democrat; get a Republican _____
   f. Select one day of the year: get a day in October; get Halloween Day. _____
   g. Select one student in Algebra I; select one student in Calculus. _____

2. Determine if the events are independent or not independent.
   a. driving at age 16; having an automobile accident_____
   b. drawing a King from a deck of 52 playing cards; rolling a 5 on a die_____
   c. getting a raise in salary and losing at basketball _____
   d. being over 7 foot tall and having a high IQ _____
   e. having a high GPA and getting a college scholarship _____
   f. parking in a no-parking zone and getting a parking ticket_____

3. There are 3 literature books, 4 algebra books, and 2 biology books on a shelf. If a book is randomly selected, what is the probability of selecting a literature books or an algebra book?

4. A card is drawn from a standard deck of cards. What is the probability of drawing an ace or a face card? (Hint: A face cards is a jack, queen, or king).

5. One tile with each letter of the alphabet is placed in a bag, and one is drawn at random. What is the probability of selecting a vowel or a letter from the word *equation*?

6. Each of the numbers from 1 to 30 is written on a card and placed in a bag. If one card is drawn at random, what is the probability that the number is a multiple of 2 or a multiple of 3?

7. Determine the probability in the following scenarios:
a.) You draw 4 kings in a row from a deck of 52 cards.
Each card is **replaced** after each draw.

b.) You draw three 6's in a row, **without replacing** the cards.

8. Four aces and four 2's are mixed and then drawn one at a time at random. Two cards are drawn. Find the probability that both cards drawn are aces if:

a.) The card is replaced before the next draw
This is an example of events that are *(independent / not independent)*

b.) The card is not replaced before the next draw
This is an example of events that are *(independent / not independent)*

9. Randy has 2 pennies, 2 nickels, and 3 dimes in his pocket. If he randomly chooses 2 coins, what is the probability that they both are dimes?

10. A jar contains 6 red marbles, 3 green marbles, and 7 yellow marbles. Two marbles are chosen from the jar, without replacement. What is the probability that both marbles chosen are green?