1. How many 3 digit numbers can be formed from the digits 1,3,5,7, and 9 if repetitions are allowed?
2. How many different 3 person groups can be formed using 13 people?
3. If the first letter of a radio station’s name must be W or K, how many arrangements of 4 letters are possible (repeats allowed)?
4. How many different ways can the letters of the word GERMANY be arranged if each letter is used once?
5. How many different ways can the letters of the word BEARS be arranged if each letter is used once?
6. How many ways can 8 books be arranged on a shelf if I have 10 books to choose from?
7. How many four man bobsled teams can be chosen from a group of nine athletes?

One bag of candy gummy fish contains 15 red fish, 10 yellow fish and 6 green fish. Find the following probabilities. (problems 8-12)

1. P(red fish)
2. P(yellow fish)
3. P(yellow or red fish)
4. P(red and red fish) (two draws without replacement).
5. P(not a red fish)

Grandma has four gray kittens, seven white kittens and ten orange kittens. She is randomly giving two to you. Find the following probabilities. (#13-15)

1. P(gray and white)
2. P(orange and orange)
3. P(2 same color)
4. Create a tree diagram for the following event.

The number of heads obtained when you flip 3 coins.

1. Find the Probability for each outcome (0,1,2,3 heads).
2. What is P(at least 2 heads)?
3. What is P(at least 1 tail)?
4. What is P(exactly 2 tails)?
5. Many states have a lottery in which you select 6 winning numbers from a sample space of 49 numbers. What is the probability that you select all six numbers correctly?
6. Differentiate between a combination and a permutation.
7. Explain why a probability greater than one is not possible.
8. A bag contains 4 blue tiles and 4 yellow tiles. Three tiles are drawn from the bag without replacement. What is the probability that all three tiles are blue (hint this is a combination).
9. Three marbles are drawn simultaneously from a bag containing 7 blue and 13 green marbles. What is the probability that at least two are blue (Hint: this is a combination).
10. Mom has 10 necklaces in her jewelry box. 7 are gold and 3 are silver. If she randomly selects 3 from her jewelry box, Find the following probabilities: (Hint: this is a combination).
11. P(only one silver) b. P(exactly 2 gold)

**Use the table to find each probability.**

**Guitars**

**Acoustic Electric**

**Tan** 78 42

**Black** 34 56

**Blue** 12 16

1. *a. P* (black|acoustic) **b.** *P*(tan|electric) c**.** *P* (blue|electric)
2. A car insurance company compiled the following information from a recent survey.

* 75% of drivers carefully follow the speed limit.
* Of the drivers who carefully follow the speed limit, 80% have never had an accident.
* Of the drivers who do not carefully follow the speed limit, 65% have never had an accident.

1. What is the p(driver does not follow the speed limit **and** has never had an accident)?
2. What is the P(had an accident|follow the speed limit)