**HW 4 - Combinations HW NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

***Determine whether the following is a permutation (P) or a combination (C).***

1. Deciding the batting order of the FVHS baseball team

2. Arranging 7 friends around a table at a birthday party

3. Arranging 6 different books on a shelf

4. Selecting 6 books from 20 to read

5. 4 students standing in line at a water fountain

***Solve the following:***

6. From a group of 8 people, 5 will each win $1000. How many different winning groups are possible?

7. Of a classroom of 20 students, 2 will be selected to teach for the day. How many combinations are possible?

8. Eight toppings for a pizza are offered. How many ways can Arnold choose 3 toppings?

9. A test is administered with 15 questions. You may omit 5. How many possible combinations are there for *questions answered?*

10. You decide that you are going to spend Saturday night at the movie theater. There are 15 movies playing, and you want to see 4.

a) In how many ways can you choose your movies if you do not consider order to be important?

b) You’re really sleepy and are afraid you may fall asleep for the last few movies… if you want to make sure you’re awake for the movies you want to see most, how many ways can you choose 4 movies?

11. There are 20 juniors and 16 seniors in AFM. In how many ways can we select 5 seniors and 3 juniors to go to the math competition?

12. Buffalo Wild Wings has 6 flavors of buffalo wings and 10 fountain soda choices. If you are ordering 3 orders of wings and 3 sodas, how many combinations are possible?

13. The prom committee has 20 seniors and 15 juniors. Within the prom committee there is a subcommittee that plans all floral arrangements. If this subcommittee is comprised on 4 juniors and 5 seniors, how many different subcommittees are possible?

***\*UNIT REVIEW – ANSWER THE FOLLOWING USING FCP, PERMUTATIONS, OR COMBINATIONS***

14. In how many ways can the 1st, 2nd, and 3rd place trophies be given out at a race of 16 cars?

15. In how many ways can the letters in the word “COMBINATION” be arranged?

16. Ms. Norris is selecting 15 students for a competitive math team. If 35 students try out, how many ways can she choose the team?

17. How many ways can 6 people sit around a circular table that is relative to the door?

18. How many ways can 7 charms be arranged on a bracelet that has no clasp?

19. How many ways can 7 charms be arranged on a bracelet if the bracelet has a clasp?

20. On the track team there are 30 boys and 33 girls. If the coach must pick 5 boys and 5 girls to send to the regional meet, how many ways can he select a regional team?