



Name: _____ Period: _____

SM2H 10.2 HW-Permutations and Combinations

State whether the events are *independent* or *dependent*.

1. Choosing an offensive player of the game and a defensive player of the game in a football game.
2. Seventy-five raffle tickets are placed in a jar. Three tickets are then selected, one after the other, without replacing a ticket after it is chosen.

Solve each problem.

3. There are 6 different packages available for school pictures. In addition, the studio offers 5 different backgrounds and 2 different finishes. How many different options are available?
4. How many 7-digit phone numbers can be formed if the first digit can't be 0 or 1, and any digit can be repeated?
5. How many 5-digit *even* numbers are there that have an *odd* number as the first digit?
6. How many 6-character passwords can be formed if the first and last characters are numbers and the remaining characters are letters? Assume that any character can be repeated.
7. A Mexican restaurant offers chicken, beef, or vegetarian fajitas wrapped with either corn or flour tortillas, and topped with either mild, medium, or hot salsa. Customers can choose a fajita with or without cheese. How many different choices of fajitas does a customer have?
8. How many possible sets of outcomes are there when a coin is flipped ten times in a row?

Evaluate each expression using the formulas for permutations and combinations.

9. $P(8,5)$ 10. $P(9,7)$ 11. $P(4,1)$ 12. $P(4,3)$

13. $C(15,2)$ 14. $C(20,18)$ 15. $C(8,1)$ 16. $C(8,7)$

In how many different ways can the letters of each word be arranged?

17. MONDAY

18. COMPUTER

19. PIZZA

20. ISOSCELES

Determine whether each situation involves a *permutation* or a *combination*. Then find the number of possibilities.

21. How many ways can a four-person bobsled team be selected from a group of 9 athletes?

22. How many ways are there to arrange 8 students in 8 seats in the front row of the school auditorium?

23. The high school choir has been practicing 12 songs, but there is time for only 5 of them at the spring concert. How many different orderings of 5 songs are possible?

24. A photographer is taking pictures of a bride and groom and their 6 attendants. If she takes photographs of 3 people in a group, how many different groups can she photograph?

25. A softball team has 15 players on its roster. There are 9 distinct positions in which these players can be placed. How many lineups can be fielded?

26. How many ways are there to choose 4 charms from a group of 8 and arrange them on a charm bracelet?

27. Timmy has a list of 30 excuses for not doing his homework. He figures he will need 17 of them this week. How many different sets of excuses are possible?

28. From a group of 10 men and 12 women, how many committees of 5 men and 6 women can be formed?