Precalculus Probability Review   Name: _____ Block: ___

Determine the best answer for the following.

1. Find 9!	2. Simplify $\frac{8!}{7!}$
3. Find $_5C_4$	4. Find $_9P_3$
5. Determine how many different computer passwords are possible if the digits and letters can be repeated. 4 digits followed by 3 letters.	6. How many different batting orders does a baseball team of nine players have if the pitcher must bat last and the catcher must bat third?
7. There are 2 red, 2 white, and 4 green marbles in a bag. What is the probability that you will draw a green marble?	8. Suppose you find 7 articles related to the topic of your research paper. In how many ways can you choose four of the articles to read?
9. How many different nine-player batting orders can be selected from a baseball squad of 12?	10. Suppose you have 5 pairs of pants and 8 shirts in your closet. How many different outfits can you make?
11. In how many ways can a president, secretary, and vice president be selected from a club of 20 students?	12. How many ways can you arrange 9 different books on a bookshelf?
13. You are setting the combination on a four-digit lock. You can use any digit 0-9. How many possible outcomes are there?	14. How many ways can you arrange the letters in the city ATLANTA?
15. How many ways can a committee of four people be selected from a group of twenty people?	16. How many ways can twelve floral arrangements be arranged in a row on a single display shelf?
17. Suppose you are asked to list, in order of preference, the five best songs you have downloaded this year. If you downloaded 50 songs, in how many ways can the five best be chosen?	18. How many different ways can the letters in ACWORTH be arranged?

	19. How many ways can a theatrical group select 2 musicals and 3 dramas from 12 musicals and 6 dramas?	20. In a train yard there are 5 tank cars, 14 boxcars, and 6 flat cars. How many ways can a train be made up consisting of 2 tank cars, 5 boxcars, and 3 flat cars?

Exercises 21-22, use the data in the table

	Pizza	Burgers	Mexican	Total
Math	27	15	45	
English	25	10	32	
History	45	9	19	
Science	38	28	18	
Total				

21. What is the probability that a person's favorite subject is math, given they like Mexican.

22. What is the probability that a person likes burgers, given their favorite subject is history.

Exercises 23-25, use the data table below, which shows employment status of individuals in a town by age group.

Age Group	Full Time	Part Time	Unemployed	Total
0-17	24	164	371	559
18-25	185	203	148	536
26-34	348	67	27	442
35-49	581	179	104	864
50+	443	162	173	778
Total	1581	775	823	3179

23. $P(Full\ Time|18 - 25)$

24. $P(0 - 25|Unemployed)$

25. $P(Part\ Time|50+)$

26. In a board game, players take turns spinning a wheel with 3 spaces and values of $100, $200, and $300. The probability of landing on $100 is 1/2. The probability of landing on $200 is 1/4. The probability of landing on $300 is 1/4. What is the expected value of spinning the wheel once?

27. You pay $15 to play the following game of chance. There is a bag containing 15 balls, 6 are red, 5 are green and the rest are purple. You are to draw one ball from the bag. You will win $25 if you draw a green ball and you will win $18 if you draw a purple ball. How much do you expect to win or lose if you play this game 100 times?