Name_____ Period_____ Date_____

HW 10-4

Sec 2 H **Probability & Addition Rule** **Unit 10**

Indicate whether the situation involves a PERMUTATION or a COMBINATION.

1. Choosing 3 toppings out of 10 options for a pizza.

2. Arranging 5 books on a shelf.

3. Making up a seating chart for a class of 30 people.

4. Picking 3 people out of 26 in a class to serve on a committee.

Find the probabilities. Be sure to show how you set up the problem. Write each answer as a fraction, a decimal and a percent.

The table below lists items in Bryan's closet. Use the table to answer questions 5-8.

Item	Number of each color				
	Black	**Blue**	**White**	**Red**	**Tan**
Pants	1	1	1	1	1
Shirt	2	0	1	1	0

5. Bryan randomly selects 2 items from his closet. What is the probability that he selects 2 pairs of pants?

6. Bryan randomly selects 2 items from his closet. What is the probability that he selects a pair of pants then selects a shirt?

7. Bryan randomly selects 2 items. What is the probability that both selected items are black?

8. Bryan randomly selects a pair of pants, then randomly selects a shirt. What is the probability that both items are white?

9. A coach is choosing a batting line-up for an upcoming baseball game. There are 14 players on the team, and all players are listed on the line-up. What is the probability that Liam will be the first on the line-up?

10. Jane has 7 green, 8 blue, and 3 white shirts in her closet. She takes two shirts from the closet at random. Find the probability that she will choose a blue shirt and a white shirt.

11. You are dealt a hand of three cards from a standard deck of 52 cards. What is the probability that you will draw three hearts?

12. Jack chooses a card from a standard deck of 52 cards, returns it to the deck, and the deck is shuffled. He then chooses a card again. What is the probability that Jack will choose and Ace both times?

13. There are 3 glasses of diet cola and 5 glasses of regular cola on the counter. Jane drinks 2 of them at random. Find each probability:

a. P(2 glasses of diet cola)

b. P(1 glass of diet cola then 1 glass of regular cola)

14. Jessica takes her 4-year old nephew into an anitque shop. There are 4 statues, 3 picture frames, and 3 vases on a shelf. The 4-year old accidentally knocks two items off of the shelf and breaks them. Find each probability.

a. P(breaking a statue and a vase)

b. P(breaking 2 picture frames)

c. P(breaking a picture frame then a vase)

15. Elvio is playing a card game with a standard 52-card deck. He wants a red card or a face card on his first draw. What is the probability that he gets a red card or a face card on his first draw?

16. Vick is playing a board game. To find the number of spaces to move, he rolls a pair of dice. What is the probability that Vick rolls doubles or a sum of 2? Write your answer as a fraction, as a decimal, and as a percent.

Ridgeview High School has 206 students in the eleventh grade. Use this information to complete problems 17 & 18.

17. The only eleventh grade art courses are drawing and painting. There are 75 eleventh grade students taking at least one art course. There are 35 taking drawing and 40 taking painting. What is the probability that a randomly chosen eleventh grader is taking both drawing and painting?

18. The only eleventh grade physical education courses are weight training and team sports. There are 195 eleventh grad students taking at least one physical education course. There are 82 takin weight training and 120 taking team sports. What is the probability that a randomly chosen eleventh grader is taking both weight training and team sports?