Review Statistics

Date_____   Period_____

State if each scenario involves a permutation or a combination. Then find the number of possibilities.

1) There are 10 people at a meeting. They each give a Valentine's Day card to everyone else. How many cards were given?

2) A team of 17 soccer players needs to choose a captain and co-captain.

3) Gabriella and DeShawn are planning trips to four countries this year. There are 9 countries they would like to visit. One trip will be one week long, another two days, another two weeks, and the other a month.

4) Carlos has homework in five subjects. He is deciding what order to complete them in.

5) The student body of 45 students wants to elect two representatives.

6) Willie has homework assignments in four subjects. He only has time to do two of them.

Find the number of possible outcomes in the sample space.

7) When a button is pressed, a computer program outputs a random even number greater than 0 and less than 8. You press the button four times.

8) A spinner can land on either red or blue. You spin twelve times.

9) A spinner can land on either red or blue. You spin eight times and then roll a six-sided die.

10) The chess club must decide when and where to meet for a practice. The possible days are Tuesday, Wednesday, or Thursday. The possible times are 3, 4, or 5 p.m. There are ten classrooms available.

11) A sandwich shop has three types of sandwiches: ham, turkey, and chicken. Each sandwich can be ordered with white bread or multi-grain bread. Customers can add any combination of the five available toppings

12) A softball player bats five times in a game. Each at-bat results in an out, getting on base, or hitting a home run.

Find the number of unique permutations of the letters in each word.

13) ONGOING

14) RUDDY

15) GEOLOGY

16) ACCRUED

17) CONNECT

18) HUMUS

Find the probability of each event.

19) A gambler places a bet on a horse race. To win, she must pick the top three finishers in order. Thirteen horses of equal ability are entered in the race. Assuming the horses finish in a random order, what is the probability that the gambler will win her bet?

20) A meeting takes place between a diplomat and eleven government officials. However, five of the officials are actually spies. If the diplomat gives secret information to six of the attendees at random, what is the probability that no secret information was given to the spies?

21) Heather and Trevon each purchase one raffle ticket. If a total of fourteen raffle tickets are sold, what is the probability that Heather wins the grand prize and Trevon wins the second prize?

22) Jenny and Jessica each purchase one raffle ticket. If a total of eleven raffle tickets are sold, what is the probability that Jenny wins the grand prize and Jessica wins the second prize?

23) A fair coin is flipped eight times. What is the probability of the coin landing tails up exactly five times?

24) A fair coin is flipped six times. What is the probability of the coin landing tails up exactly three times?

25) One day, nine babies are born at a hospital. Assuming each baby has an equal chance of being a boy or girl, what is the probability that exactly three of the nine babies are girls?

26) A six-sided die is rolled eight times. What is the probability that the die will show an even number exactly four times?

27) A six-sided die is rolled twelve times. What is the probability that the die will show an even number at least two times?

28) A fair coin is flipped eleven times. What is the probability of the coin landing tails up at least ten times?

29) A fair coin is flipped fifteen times. What is the probability of the coin landing heads up at most thirteen times?

30) A basketball player has a 50% chance of making each free throw. What is the probability that the player makes at least two out of seven free throws?

31) A meeting takes place between a diplomat and thirteen government officials. However, six of the officials are actually spies. If the diplomat gives secret information to eight of the attendees, what is the probability that the diplomat gave secret information to exactly four spies?

32) A jar contains eight black buttons and eight brown buttons. If seven buttons are picked at random, what is the probability that exactly three of them are black?

33) You are dealt five cards from a standard and shuffled deck of playing cards. Note that a standard deck has 52 cards and four of those are kings. What is the probability that you'll have exactly three kings in your hand?

34) A technician is launching fireworks near the end of a show. Of the remaining fifteen fireworks, seven are blue and eight are red. If she launches eight of them in a random order, what is the probability that exactly four of them are blue ones?

35) A hotel has three elevators. One of them is a freight elevator. When pressing the button, one of the elevators randomly services your floor. If you use the elevators seven times, what is the probability that you use the freight elevator exactly two times?

36) An archer has a 25% chance of hitting the bullseye on a target. What is the probability that the archer will hit the bullseye exactly three out of five times?

37) A spinner has an equal chance of landing on either red, blue, or green. You spin seven times. What is the probability that spinner lands on red at most five times?

38) A quiz consists of seven multiple choice questions. Each question has four choices. A student who forgot to study guesses randomly on every question. What is the probability that the student answers at most five questions correctly?

Review Statistics

Date_____ Period_____

State if each scenario involves a permutation or a combination. Then find the number of possibilities.

1) There are 10 people at a meeting. They each give a Valentine's Day card to everyone else. How many cards were given? *Permutation; 90*

2) A team of 17 soccer players needs to choose a captain and co-captain. *Permutation; 272*

3) Gabriella and DeShawn are planning trips to four countries this year. There are 9 countries they would like to visit. One trip will be one week long, another two days, another two weeks, and the other a month. *Permutation; 3,024*

4) Carlos has homework in five subjects. He is deciding what order to complete them in. *Permutation; 120*

5) The student body of 45 students wants to elect two representatives. *Combination; 990*

6) Willie has homework assignments in four subjects. He only has time to do two of them. *Combination; 6*

Find the number of possible outcomes in the sample space.

7) When a button is pressed, a computer program outputs a random even number greater than 0 and less than 8. You press the button four times. *81*

8) A spinner can land on either red or blue. You spin twelve times. *4096*

9) A spinner can land on either red or blue. You spin eight times and then roll a six-sided die. *1536*

10) The chess club must decide when and where to meet for a practice. The possible days are Tuesday, Wednesday, or Thursday. The possible times are 3, 4, or 5 p.m. There are ten classrooms available. *90*

11) A sandwich shop has three types of sandwiches: ham, turkey, and chicken. Each sandwich can be ordered with white bread or multi-grain bread. Customers can add any combination of the five available toppings *192*

12) A softball player bats five times in a game. Each at-bat results in an out, getting on base, or hitting a home run. *243*

Find the number of unique permutations of the letters in each word.

13) ONGOING *630*

14) RUDDY *60*

15) GEOLOGY *1,260*

16) ACCRUED *2,520*

17) CONNECT *1,260*

18) HUMUS *60*

Find the probability of each event.

19) A gambler places a bet on a horse race. To win, she must pick the top three finishers in order. Thirteen horses of equal ability are entered in the race. Assuming the horses finish in a random order, what is the probability that the gambler will win her bet? *0.0582*

20) A meeting takes place between a diplomat and eleven government officials. However, five of the officials are actually spies. If the diplomat gives secret information to six of the attendees at random, what is the probability that no secret information was given to the spies? *0.216%*

21) Heather and Trevon each purchase one raffle ticket. If a total of fourteen raffle tickets are sold, what is the probability that Heather wins the grand prize and Trevon wins the second prize?   0.549%

22) Jenny and Jessica each purchase one raffle ticket. If a total of eleven raffle tickets are sold, what is the probability that Jenny wins the grand prize and Jessica wins the second prize?   0.909%

23) A fair coin is flipped eight times. What is the probability of the coin landing tails up exactly five times?   21.875%

24) A fair coin is flipped six times. What is the probability of the coin landing tails up exactly three times?   31.25%

25) One day, nine babies are born at a hospital. Assuming each baby has an equal chance of being a boy or girl, what is the probability that exactly three of the nine babies are girls?   16.406%

26) A six-sided die is rolled eight times. What is the probability that the die will show an even number exactly four times?   27.344%

27) A six-sided die is rolled twelve times. What is the probability that the die will show an even number at least two times?   99.683%

28) A fair coin is flipped eleven times. What is the probability of the coin landing tails up at least ten times?   0.586%

29) A fair coin is flipped fifteen times. What is the probability of the coin landing heads up at most thirteen times?   99.953%

30) A basketball player has a 50% chance of making each free throw. What is the probability that the player makes at least two out of seven free throws?   93.75%

31) A meeting takes place between a diplomat and thirteen government officials. However, six of the officials are actually spies. If the diplomat gives secret information to eight of the attendees, what is the probability that the diplomat gave secret information to exactly four spies?   40.793%

32) A jar contains eight black buttons and eight brown buttons. If seven buttons are picked at random, what is the probability that exactly three of them are black?   34.266%

33) You are dealt five cards from a standard and shuffled deck of playing cards. Note that a standard deck has 52 cards and four of those are kings. What is the probability that you'll have exactly three kings in your hand?   0.174%

34) A technician is launching fireworks near the end of a show. Of the remaining fifteen fireworks, seven are blue and eight are red. If she launches eight of them in a random order, what is the probability that exactly four of them are blue ones?   38.073%

35) A hotel has three elevators. One of them is a freight elevator. When pressing the button, one of the elevators randomly services your floor. If you use the elevators seven times, what is the probability that you use the freight elevator exactly two times?   30.727%

36) An archer has a 25% chance of hitting the bullseye on a target. What is the probability that the archer will hit the bullseye exactly three out of five times?   8.789%

37) A spinner has an equal chance of landing on either red, blue, or green. You spin seven times. What is the probability that spinner lands on red at most five times?   99.314%

38) A quiz consists of seven multiple choice questions. Each question has four choices. A student who forgot to study guesses randomly on every question. What is the probability that the student answers at most five questions correctly?   99.866%