1) There are 12 tulip bulbs in a package. Nine will yield red tulips while three will yield yellow tulips. If two bulbs are selected at random out of the package and not replaced, find the following probabilities:

      a) Both tulips will be red

      b) The first tulip is yellow and the second tulip is red

2) A bag contains 2 orange, 4 black, and 6 blue marbles. Three marbles are drawn one at a time and not replaced. Find the probability of each event:

      a) All three are black

      b) All three are blue

      c) None of the marbles are blue

      d) The order of drawing is Black – Orange – Blue

Find the probability.

3) A security code consists of 5 digits (0-9) and a digit may not be used more than once. What is the probability a thief guesses your correct security code?

4) Amy must choose a password for her voicemail that consists of 3 letters followed by 3 digits. . She cannot use the letters A and Z or the digits 0 and 9. Each letter or numbers may be used more than once. What is the possibility of her nosy mother guessing her password?

5) If one person is randomly selected from a class that has 6 sophomores, 12 juniors, and 7 seniors, find the probability that the person is a senior.

6) If a bag has 22 orange, 18 red, 12 green, and 8 blue marbles, what is the probability that in one draw you will select a blue marble?

7) 1 number cube is rolled twice. What is the probability that one roll is a "3" and the other roll is an even number?

8) You toss a coin in the air 5 times. What is the probability you get 3 heads and then 2 tails?

9) Your teacher has a bag of candy to pass out. It contains 5 snickers, 3 skittles, 4 hot tamales, and 7 starburst. You get to select 3 candies from the bag. What is the probability that you select all 3 skittles?

10) The letters of the word GEOMETRY are written on separate cards and placed face down on a desk. If you randomly choose one card, what is the probability that it contains a consonant?

11) Based on the chart below, determine the following probabilities:

Number	Frequency of Rolls
1	2
2	7
3	3
4	1
5	1
6	6

a) Rolling a 1 or 6

b) Rolling a number greater than 2

12) What is the theoretical probability of rolling a number 4 or greater on a number cube?

For the problems below, let A={2,3,4,5}, B= {2,4,6,8}, C= {1,4,10,11,14,17}. Determine each set. Ω={1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20}

13) $A \cap B$

14) $A \cup C$

15) $A \cap B \cap C$

16) $(A \cup C) \cap B$

17) C'

18) $(A \cup C)'$

A bag of marbles contains the following colors: 2 red, 3 blue, 6 yellow, and 4 green. You want to select 2 out of the bag.

19. What is the probability of choosing a red marble, replace it and choose a green marble?

20. What is the probability of choosing two red marbles with replacement?

21. What is the probability of choosing two red marbles without replacement?

22. What is the probability of choosing a blue marble and a yellow marble without replacement?

Two dice are rolled in a board game; one blue and one red. Find the following probabilities.

23. What is the probability that the red dice will be odd and the blue dice will be even?

24. What is the probability that sum of the dice will be less than or equal to 4 and the blue die lands on 2.

25. What is the probability red die lands on and even number and the sum is greater than 4.

A Student survey is handed out to 25 random BHS students at lunch. There data is shown in the table below as it pertains to owning a car and having a job.

		Owns a Car		
		Yes	No	
has a Job	Yes	9	3	
	No	8	5	

26. What is the probability that a student has a job and owns a car?

27. What is the probability that a student owns a car given that they have a Job?

28. Given that a student owns a car, what is the probability that they do not have a job?

29. What is the probability that a student has a job?

The following table shows a sample of 10th grade students at BHS and their favorite music.

	Boys	Girls	total
Alternative	27	21	
Rap	20	8	
Country	15	29	
Total			

30. Make a table of the joint and marginal relative frequency given the above data.

	Boys	Girls	total
Alternative			
Rap			
Country			
Total			

31. What is the probability girl who likes rap?

32. Given that they like country, what is the probability they are a girl?

33. What is the probability that they like country, given that they are a boy?

34. What is the probability that they are a boy and likes alternative?

You must choose one card out of a standard deck of cards. Determine the probabilities:

35. A heart or a jack
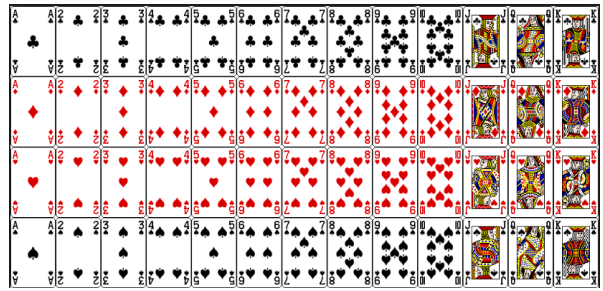
36. A heart or 7 of diamonds

37. A red card or 7 of diamonds

38. A face card or a club

39. An even number card or a numbered card greater than 5

40. A diamond or a spade

41. A face card or an Ace

42. A card that is not a club

43. A card is the king of spades

Fill in the missing survey results on the Buffalo flat bread here at BHS and answer the following questions.

	Freshmen	Sophomores	Juniors	Seniors	Total
Favor	26			15	75
Oppose		17		3	
No Opinion	10	5		32	55
	40	35	35		

44. What is the probability that a randomly selected person opposes or has no opinion about the survey.

45. Find the probability that randomly selected person is a senior or opposes Buffalo flat bread.

46. Find the probability that a randomly selected person is a sophomore or has no opinion.

47. Find the probability that a randomly selected person favors or has no opinion.

48. Find the probability that a randomly selected person is a freshmen or a junior.