

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 $\frac{6}{11}$

b) The first tulip is yellow and the second tulip is red $\frac{9}{44}$

2) A bag contains 2 orange, 4 black, and 6 blue marbles. Three marbles are drawn one at a time and replaced. Find the probability of each event:

a) All three are black $\frac{1}{55}$

b) All three are blue $\frac{1}{11}$

c) None of the marbles are blue $\frac{1}{11}$

d) The order of drawing is Black - Orange - Blue $\frac{2}{55}$

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? $\frac{1}{30,240}$

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 number may be used more than once. What is the possibility of her nosy mother guessing her password? $\frac{1}{7,077,888}$

5) If one person is randomly selected from a class that has 6 sophomores, 12 juniors, and 7 seniors, what is the probability that the person is a senior? $\frac{1}{25}$

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? $\frac{2}{17}$

		Owns a Car		
has a Job		Yes	No	
	Yes	9	3	12
	No	8	5	13
		17	8	25

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

$$\frac{9}{25}$$

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

$$\frac{3}{4}$$

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

$$\frac{8}{17}$$

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

$$\frac{12}{25}$$

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

	Boys	Girls	total
Alternative	27	21	48
Rap	20	8	28
Country	15	29	44
Total	62	58	120

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

	Boys	Girls	total
Alternative	0.225	0.175	0.4
Rap	0.1667	0.0667	0.2333
Country	0.125	0.242	0.3667
Total	0.5167	0.4833	1

31. What is the probability girl who likes rap?

$$\frac{1}{15}$$

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

$$\frac{29}{44}$$

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

$$\frac{15}{62}$$

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

$$\frac{27}{120}$$

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?

$$\frac{1}{12}$$

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

$$\frac{1}{32}$$

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?

$$\frac{1}{969}$$

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?

$$\frac{8}{9}$$

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 $\frac{2}{5}$

b) Rolling a number greater than 2 $\frac{11}{20}$

$$\frac{11}{20}$$

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

$$\frac{1}{2}$$

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. $\Omega = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20\}$

13) $A \cap B$
 $\{2, 4\}$

14) $A \cup C$
 $\{1, 2, 3, 4, 5, 10, 11, 14, 17\}$

15) $A \cap B \cap C$
 $\{4\}$

16) $(A \cup C) \cap B$
 $\{2, 4\}$

17) C'
 $\{2, 3, 5, 6, 7, 8, 9, 12, 13, 15, 16, 18, 19, 20\}$

18) $(A \cup C)'$
 $\{6, 7, 8, 9, 12, 13, 15, 16, 18, 19, 20\}$

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

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

$$\frac{8}{225}$$

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

$$\frac{4}{225}$$

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

$$\frac{2}{165}$$

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

$$\frac{3}{35}$$

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?

$$\frac{1}{4}$$

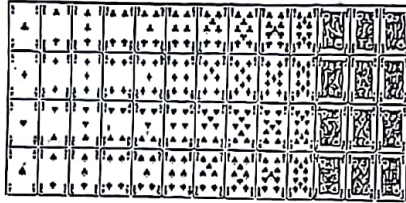
24. What is the probability that sum of the dice will be less than or equal to 4 and the blue dice will be even?

$$\frac{1}{8}$$

25. What is the probability red die lands on an odd number and the sum is greater than 10?

$$\frac{4}{9}$$

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



35. A heart or a jack

$$\frac{4}{13}$$

36. A heart or 7 of diamonds

$$\frac{7}{26}$$

37. A red card or 7 of diamonds

$$\frac{1}{2}$$

38. A face card or a club

$$\frac{11}{24}$$

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

$$\frac{7}{13}$$

40. A diamond or a spade

$$\frac{1}{2}$$

41. A face card or an Ace

$$\frac{4}{13}$$

42. A card that is not a club

$$\frac{3}{4}$$

43. A card is the king of spades

$$\frac{1}{52}$$

Fill in the missing survey results on the E

	Freshmen	Soph
Favor	26	
Oppose		17
No Opinion	10	5
	40	35

44. What is the probability that a ran

$$\frac{17}{32}$$

45. Find the probability that randomly

$$\frac{77}{160}$$

46. Find the probability that a random

$$\frac{17}{32}$$

47. Find the probability that a randoml

$$\frac{13}{16}$$

48. Find the probability that a randoml

$$\frac{15}{32}$$