1. A piggy bank contains 3 quarters, 2 dimes, and 5 nickels. One coin is shaken out and then put back in before a second coin is shaken out. What is the probability the first coin will be a quarter and the second coin will be a dime?

2. What is the probability of randomly selecting a figure from the group below that has at least one right angle or four sides?

![Figures](image.png)

3. There are 10 horses in a race and only three winning places: win, place, and show. How many possible winning arrangements are there for the race of 10 horses?

4. Five men and six women are eligible to serve on a committee requiring two men and two women members. How many different ways can this committee be selected?

5. A men’s clothing store is offering mix and match sport jackets and slacks. There are 10 different jackets and 15 different slacks. If a man buys one of each how many different outfits could he purchase?

6. Sportswriters were asked to rank five football teams from best to worst. How many different ways can the teams be related?

7. In how many ways can 7 books be arranged on a shelf?

8. Ten girls try out for a swim team. How many teams of 6 girls can be chosen?

9. Using the data in the table below, determine the probability that if a new president is selected, the president will be a girl given the president must be a senior.

<table>
<thead>
<tr>
<th></th>
<th>Seniors</th>
<th>Juniors</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Girl</td>
<td>6</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Boy</td>
<td>4</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>5</td>
<td>15</td>
</tr>
</tbody>
</table>

10. Five $.29 stamps and three $.20 stamps are loose in an envelope. If a person picks two stamps without looking (without replacement), what is the probability the stamps are both $.20 stamps?

11. Given the digits 0-9, what is the probability a person would randomly select a three, given the number is odd?

12. How many ways can you rearrange the letters of the word “Mississippi”?

13. Using the digits 0-9, what is the probability of randomly selecting an odd digit or a digit greater than 7?
14. A multiple-choice test question has four choices a-d. What is the probability of not guessing the correct answer?

15. If 70% of all college students join a club, what is the probability that a randomly selected college student does not belong to a club?

16. The odds in favor of winning the door prize are 2:15. What are the odds against winning?

17. How many different ways can the letters of the word "MIME" be arranged?

18. How many different ways can the letters of the word "COUNT" be arranged?

19. The probability a student will pass a test is $\frac{3}{4}$. What are the odds in favor of passing?

20. The odds in favor of Becky winning a tennis tournament are 1:8. What is the probability Becky will not win the tournament.

21. A coin is tossed and a die is rolled.
   a. How many different possible outcomes are there?  
   b. List the sample space.

22. Using the information from problem #21, what is the probability that a head is tossed and an even number is rolled?

23 – 24. A hat contains four marbles: 1 yellow, 1 brown, 1 purple and 1 orange.

23. If two marbles are selected without replacement, how many points are in the sample space?

24. List the sample space.

25. Evaluate 
   a) $\frac{50!}{49!}$
   b) $6P_2$
   c) $6C_2$

26. A recent survey indicates that 30% of college students drink coffee, 72% of college students drink tea, and 25% of drink both. If one student is selected at random, what is the probability that the student drinks coffee or tea?

27. A person interested in buying a certain model of car can buy it with or without each of the following option accessories: padded steering wheel, plush Corinthian leather, anti-theft alarm and talking dashboard. How many ways are these options available?

**Answers:**

1) $\frac{3}{50}$  
2) $\frac{4}{5}$  
3) 720  
4) 150  
5) 150  
6) 120  
7) 5040  
8) 210  
9) $\frac{3}{10}$  
10) $\frac{3}{28}$  
11) $\frac{1}{5}$  
12) 34650  
13) $\frac{3}{5}$  
14) $\frac{3}{4}$  
15) .3  
16) 15:2  
17) 12  
18) 120  
19) 3:1  
20) $\frac{8}{9}$  
21) a) 12  
   b) H1, H2, H3, H4, H5, H6, T1, T2, T3, T4, T5, T6  
   22) $\frac{1}{4}$  
23) 12  
24) YB, YP, YO, BY, BP, BO, OY, OP, OB, PY, PB, PO  
25) a. 50  
   b. 30  
   c. 15  
26) .77  
27) 16  
(032)