

A board game uses a set of 6 different cards. Each card has one of the following; a star, circle, diamond, rectangle, square and pentagon. Find each probability:

1) P(circle or star)

$$\frac{1}{6} + \frac{1}{6} = \frac{1}{3}$$

2) P(diamond then square), replacement

$$\frac{1}{6} \cdot \frac{1}{6} = \frac{1}{36}$$

3) P(2 polygons), replacement

$$\frac{5}{6} \cdot \frac{5}{6} = \frac{25}{36}$$

4) P(2 polygons), no replacement

$$\frac{5}{6} \cdot \frac{4}{5} = \frac{2}{3}$$

5) P(circle then hexagon), no replacement

$$\frac{1}{6} \cdot 0 = 0$$

6) P(polygon or circle)

$$\frac{5}{6} + \frac{1}{6} = 1$$

## WB 201 Assignment #1-10; E.C. for All

A die is rolled. Find each probability...

1) P(5 or 6)

$$\frac{1}{3}$$

2) P(at least a 3)

3 4 5 6

$$\frac{2}{3}$$

3) P(less than a 4)

$$\frac{3}{6}$$

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

#4 – 6; A die is rolled 3 times. Find the probability of each set of rolls...

4) a 1 is rolled, then a 2, then a 3

$$\frac{1}{216}$$

5) 2 odd numbers are rolled, then a 6

$$\frac{3}{6} \cdot \frac{3}{6} \cdot \frac{1}{6} = \frac{1}{24}$$

6) a number less than 3 is rolled, then a 3, then a number greater than 3

$$\frac{1}{36}$$

7) A bag contains 45 dyed eggs: 15 yellow, 12 green and 18 red. What is the probability of selecting a green or a red egg?

$$\frac{2}{3}$$

8) A bowl has 10 whole wheat crackers, 16 sesame crackers and 14 rye crisps. If a person picks a cracker at random, what is the probability of picking either a sesame cracker or a rye crisp?

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

9) What is the probability of drawing two cards showing odd numbers from a set of cards that show the first 20 counting numbers if the first card is not replaced before the second?

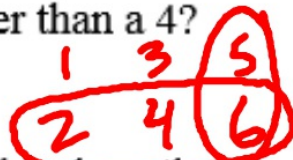
$$\frac{10}{20} \cdot \frac{9}{19} = \frac{9}{38}$$

10) A die is rolled.

a. Probability of rolling a 3 or a 4?

$$\frac{1}{3}$$

b. Probability of rolling an even or greater than a 4?

$$\frac{3}{6} + \frac{2}{6} - \frac{1}{6} = \frac{2}{3}$$


11) A bag contains 5 red and 4 white marbles. A marble is selected, replaced and another is selected. What is the probability that both will be red?

$$\frac{25}{81}$$

12) The letters of the alphabet are placed in a bag. What is the probability of selecting a vowel or one of the letters from the word QUIZ?

$$\frac{5}{26} + \frac{4}{26} - \frac{2}{26} = \frac{7}{26}$$

13) The cup on Sophie's desk holds 4 red pens and 7 black pens. What is the probability of her selecting first a black pen, then a red pen?

$$\frac{7}{11} \cdot \frac{4}{10} = \frac{14}{55}$$

# U2: Probability

## Just Practice

**Unit 1 Topics**

**Consecutive Events**

**Basic Probability**

A circuit board with 20 computer chips contains 4 chips that are defective. If 3 chips are selected, what is the probability that all 3 are defective?

$$\begin{array}{c} 1^{\text{st}} \quad 2^{\text{nd}} \quad 3^{\text{rd}} \\ \frac{4}{20} \cdot \frac{3}{19} \cdot \frac{2}{18} = \end{array} \left| \begin{array}{c} \text{All 3} \\ \frac{{}^4C_3}{{}^{20}C_3} \end{array} \right. = \boxed{\frac{1}{285}}$$

Mark is going on a road trip. He is debating between 8 movies and 9 playlists to listen to. If he chooses at random what is the probability that he selects 3 movies and 5 playlists?

$$\begin{array}{l} \text{Last Unit} \rightarrow \\ \text{New} \rightarrow \end{array} \frac{{}^8C_3 \cdot {}^9C_5}{{}^{17}C_8} = \frac{56 \cdot 126}{24,310} = \boxed{0.29}$$

11) Ron has a list of books he has to read for school and a list of books he wants to read. There are 6 for school and 10 for himself.

a. If he randomly chooses 6 books what is the probability that they are all from his list?

$$\boxed{\#9} \quad \frac{{}^{10}C_6}{{}^{16}C_6} = \frac{10}{16} \cdot \frac{9}{15} \cdot \frac{8}{14} \cdot \frac{7}{13} \cdot \frac{6}{12} \cdot \frac{5}{11} = \boxed{\frac{15}{572}}$$

b. What is the probability that he picks 3 from each list?

$$\boxed{\#10} \quad \frac{{}^{10}C_3 \cdot {}^6C_3}{{}^{16}C_6} = \boxed{\frac{300}{1001}} \quad \text{His + School}$$

12) There are 7 girls and 6 boys on the junior class homecoming committee. A subcommittee of 4 people is being chosen at random to decide the theme for the class float. What is the probability that the subcommittee will have at least 2 girls?

2G/2B      3G/1B      4G

OR

$$\frac{{}^7C_2 \cdot {}^6C_2}{{}^{13}C_4} + \frac{{}^7C_3 \cdot {}^6C_1}{{}^{13}C_4} + \frac{{}^7C_4}{{}^{13}C_4}$$

$$\frac{63}{143} + \frac{42}{143} + \frac{7}{143} = \boxed{\frac{112}{143}}$$

13) The Film Club makes a list of 9 comedies and 5 adventure movies they want to see. They plan to select 4 titles at random to show this semester. What is the probability that at least three of the films they select are comedies? OR

$$\begin{array}{c} 3C/1A \\ \frac{9C_3 \cdot 5C_1}{14C_4} + \frac{9C_4}{14C_4} = \boxed{\frac{6}{11}} \end{array}$$