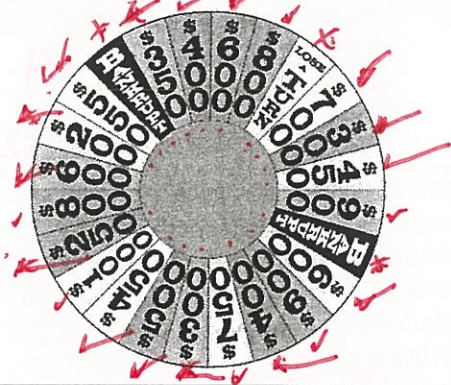


PROBABILITY REVIEW

SIMPLE PROBABILITY

1. If the spinner below is spun once, find each probability.



a) $P(\text{bankrupt})$

$$\frac{2}{24} = \frac{1}{12}$$

b) $P(\text{at least } \$500)$

$$\frac{12}{24} = \frac{1}{2}$$

c) $P(\$800 \text{ or } \$1,000)$

$$\frac{3}{24} = \frac{1}{8}$$

d) $P(\text{a maximum of } \$700)$

$$\frac{15}{24} = \frac{5}{8}$$

e) $P(\text{less than } \$400)$

$$\frac{5}{24}$$

f) $P(\text{lose a turn})$

$$\frac{1}{24}$$

2. A bucket contains a set of magnetic alphabet letters. If a letter is drawn at random, what is the probability that it is a letter in the word FIRECRACKER?

~~X X X X X X X X X X~~

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

3. Sarah has been late for work 9 out of the last 30 days. Based on this, what is the probability that she will be on time for work on any given day?

$$\frac{21}{30} = \frac{7}{10}$$

THEORETICAL VS. EXPERIMENTAL PROBABILITY

4. A day of the week was chosen at random 60 times. Results of this experiment are shown in the table below.

Result	Sun	Mon	Tues	Weds	Thurs	Fri	Sat
Frequency	14	6	5	10	12	9	4

a) What is the theoretical probability of the selecting a day that starts with the letter S?

$$\frac{2}{7}$$

b) Based on this experiment, what is the probability of selecting a day that starts with the letter S?

$$\frac{18}{60} = \frac{3}{10}$$

c) Theoretically, if a day is chosen at random 300 times, about many times would you expect Monday to be chosen?

$$\frac{1}{7} = \frac{x}{300} \quad x = 42.9$$

d) Based on this experiment, if a day is chosen at random 300 times, about many times would you expect Monday to be chosen?

$$\frac{6}{60} = \frac{x}{300} \quad x = 30 \text{ times}$$

COUNTING PRINCIPLE

5. How many ways can Mason make his elective schedule if he can choose from photography, journalism, art, or marketing as his first elective and keyboarding or chorus as his second elective?

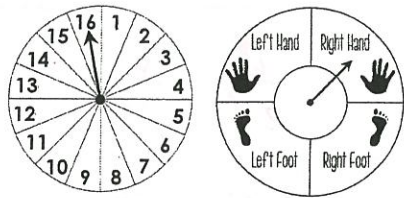
$$4 \cdot 2 = 8$$

6. To access their grades in the gradebook, each student is given a unique code that contains three letters followed by one digit. How many codes are possible?

$$26 \cdot 26 \cdot 26 \cdot 10 = 175,760$$

COMPOUND PROBABILITY

7. If each spinner is spun once, find each probability.



a) $P(\text{multiple of 3, then right side})$

$$\frac{5}{16} \cdot \frac{1}{2} = \frac{5}{32}$$

b) $P(\text{less than 3, then left foot})$

$$\frac{2}{16} \cdot \frac{1}{4} = \frac{1}{32}$$

c) $P(\text{at least 7, then left hand})$

$$\frac{10}{16} \cdot \frac{1}{4} = \frac{5}{32}$$

d) $P(\text{prime, then not right foot})$

$$\frac{3}{16} \cdot \frac{3}{4} = \frac{9}{32}$$

8. A letter from the word CONFIDENCE is chosen at random, then a card is drawn from a standard deck. What is the probability of getting a consonant, then a red card or an ace?

$$\frac{3}{6} \cdot \frac{28}{52} = \frac{21}{65}$$

9. In the last 10 presidential elections, the democratic candidate has won six times in Michigan and four times in Ohio. What is the probability that the democratic candidate wins both Michigan and Ohio in the next presidential election?

$$\frac{3}{5} \cdot \frac{4}{10} = \frac{6}{25}$$

10. Each homeroom must send two student representatives to each student council meeting. Mrs. Lincoln has 15 girls and 10 boys in her homeroom. If she randomly selects two students to attend the next meeting, find each probability.

a) $P(\text{one girl and one boy})$

$$\frac{3}{5} \cdot \frac{10}{24} = \frac{3}{12} = \frac{1}{4}$$

b) $P(\text{both boys})$

$$\frac{2}{5} \cdot \frac{9}{24} = \frac{3}{20}$$

USING SAMPLES TO PREDICT

11. A sporting goods store would like to conduct a survey to determine their customers' favorite sport. They will then run a sale on all equipment related to this sport. Determine whether the samples below would be biased or unbiased. Explain.

A: 200 random members of their rewards program

B: every 5th person who enters the store on Super Bowl Sunday

C: setting up a booth and asking people at a little league game

12. A certain airport offers service for JetBlue, Southwest, American Airlines, Delta, and United. They conducted a survey of 120 people to determine which airline is their favorite. Results are shown below.

Airline	Frequency
JetBlue	25
Southwest	42
American	15
Delta	20
United	18

a) What percent reported United as their favorite airline?

$$\frac{18}{120} = \frac{P}{100} \quad P = 15\%$$

b) What percent reported JetBlue or Southwest as their favorite airline?

$$\frac{67}{120} = \frac{P}{100} \quad P = 55.83\%$$

c) Out of 1,500 people, how many would you expect to say their favorite airline is not American Airlines?

$$\frac{105}{120} = \frac{x}{1500} \quad x = 1313 \text{ people}$$