

**Homework 9-2**  
**Experimental & Theoretical**  
**Probability**

Unit 9

**First, use the table below to record the data from Worksheet 9-2, problem #5.**  
**Second, toss a coin 30 times and record the data in the table provided.**

Heads or Tails	Frequency
Heads	
Tails	

**Using the 50 tosses recorded in the table above, answer questions #1-3.**

1.  $P(\text{Heads})$
2.  $P(\text{Tails})$
3. How did the additional coin tosses affect your Experimental Probability? Explain.

**A movie theater sells popcorn in small, medium, large and jumbo sizes. The customers of the first show purchase 4 small, 20 medium, 40 large, and 16 jumbo containers of popcorn. Estimate the probability of the purchase of each of the different size containers of popcorn.**

4.  $P(\text{small container})$
5.  $P(\text{medium container})$
6.  $P(\text{large container})$
7.  $P(\text{jumbo container})$

**Janessa Polled 154 students about their favorite winter sport.**

Outcome	Frequency
Skiing	46
Sledding	21
Snowboarding	64
Ice Skating	14
Other	9

8. Use the table to compare the probability that a student chose snowboarding to the probability that a student chose skinning.
9. Use the table to compare the probability that a student chose ice skating to the probability that a student chose sledding.

Three Separate jars each contain 2 different color marbles. Jar A has a red and a blue marble. Jar B has a red and a green marble. Jar C has a purple and a white marble. One marble is drawn from each jar. The table shows a sample space with all outcomes equally likely. Find each probability.

Jar A	Jar B	Jar C	Outcome
R	R	P	RRP
R	R	W	RRW
R	G	P	RGP
R	G	W	RGW
B	R	P	BRP
B	R	W	BRW
B	G	P	BGP
B	G	W	BGW

10.  $P(\text{RRP})$

13.  $P(\text{a green with 2 other colors})$

11.  $P(\text{BGW})$

14.  $P(\text{1 white or 1 purple})$

12.  $P(\text{2 red with another color})$

The *theoretical probability* of an event tells you the probability of the event without your having to conduct an experiment.

For example, the experiment of rolling two dice and adding the two numbers that each die shows to know the possible sums of numbers.

		●	●●	●●●	●●●●	●●●●●	●●●●●●
●	2	3	4	5	6	7	
●●	3	4	5	6	7	8	
●●●	4	5	6	7	8	9	
●●●●	5	6	7	8	9	10	
●●●●●	6	7	8	9	10	11	
●●●●●●	7	8	9	10	11	12	

15. Use the number of time each sum occurs to complete the table.

Sum	1	2	3	4	5	6	7	8	9	10	11	12
Outcomes												
Theoretical Probability												

16. Explain which sum is most likely to occur.