

## Worksheet #2 -- Types of Probability & Odds

1. Use the number cube table to answer:

A. What is the theoretical probability that an even number will be rolled on a number cube?

$$\frac{1}{2} = .5$$

B. What was the experimental probability of how many times an even number was actually rolled using the table?

$$\frac{15}{36} = \frac{5}{12} = .417$$

C. If you roll a number cube 36 times, how many times would you expect to roll the number one?

6

D. How many times did you actually roll the number one in the experiment?

8

Number on Cube	Frequency
1	8
2	3
3	9
4	6
5	4
6	6

E. What is the theoretical probability for rolling a number greater than 4?

$$\frac{1}{3} = .333$$

F. What was the experimental probability of rolling a number greater than 4?

$$\frac{5}{18} = .278$$

2. You plant 30 African violet seeds and 9 of them sprout. Use experimental probability to predict how many will sprout if you plant 20 seeds?

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3. Based upon the statistics shown in the table:

A. What is the probability that the low temperature on May 1st will be higher than 40°?

$$\frac{36}{50} = \frac{18}{25} = .72$$

B. Is this a theoretical or an experimental probability?

exp.

C. What is the probability that the low temperature will be between 50° and 70°?

$$\frac{22}{50} = \frac{11}{25} = .44$$

Lowest Temperature on May 1st, 1951 - 2000	
Temp.	Frequency
20° - 30°	7
30° - 40°	7
40° - 50°	14
50° - 60°	16
60° - 70°	6

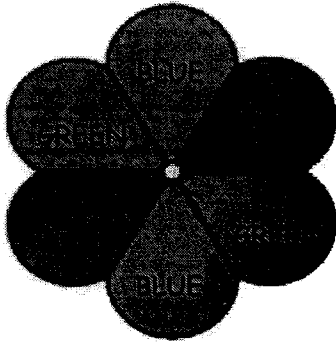
4. From a deck of 52 playing cards,

A. What is the probability that if you draw one card, it will be a 2, 3, 4 or 5?

$$\frac{16}{52} = \frac{4}{13} = .308$$

B. Is this an experimental or a theoretical probability?

5. The colored wheel is spun 50 times, and the results are shown in the table below. Answer these questions:



blue	red	green
15	18	17

A. What was the experimental probability of landing on red?  $\frac{18}{50} = \frac{9}{25} = .36$

B. What is the theoretical probability of landing on red?  $\frac{2}{6} = \frac{1}{3} = .333$

C. What was the experimental probability of not landing on red?  $\frac{32}{50} = \frac{16}{25} = .64$

D. What is the theoretical probability of not landing on red?  $\frac{4}{6} = \frac{2}{3} = .667$

E. What was the experimental probability of landing on green or red?  $\frac{35}{50} = \frac{7}{10} = .7$

6. There are 84 colored chips in a bag, each either red, white or blue. The theoretical probability of picking a blue chip is 25%. How many blue chips are in the bag?

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7. If you roll a die, what would be the theoretical probability of each of these events:

A. Rolling either a 5 or a 6  $\frac{2}{6} = \frac{1}{3} = .333$

B. Rolling a number less than 3  $\frac{2}{6} = \frac{1}{3} = .333$

C. Rolling a number larger than 2  $\frac{4}{6} = \frac{2}{3} = .667$

D. Rolling an odd number  $\frac{3}{6} = \frac{1}{2} = .5$

8. The door prize at a party with 25 people is given by writing numbers 1 through 25 on the bottom of the paper plates used.

A. What is the probability that an individual had the winning plate?

$$\frac{1}{25} = .04$$

B. What are the odds of winning the door prize above?

$$1:24$$

C. What are the odds of not winning the door prize?

$$24:1$$

9. Find each probability if a die is rolled.

A. P(3)  $\frac{1}{6} = .167$

B. P(even number)  $\frac{3}{6} = \frac{1}{2} = .5$

C. P(number less than 1) 0

D. P(a number divisible by 4)  $\frac{1}{6} = .167$

E. P(a number greater than 1)  $\frac{5}{6} = .833$

10. Find the odds in favor of each outcome if a die is rolled.

A. A number greater than 3 3:3 or 1:1

B. A multiple of 2 3:3

C. Not a 4 5:1

D. A number divisible by 3 2:4  
= 1:2

11. Jessica has a normal deck of cards. She asks her friend Sarah to draw a card.

A. What is the probability that Sarah will select the queen of hearts?

$$\frac{1}{52} = .019$$

B. What is the probability that Sarah will not select the queen of hearts?

$$\frac{51}{52} = .981$$

C. What is the odds in favor of Sarah selecting the queen of hearts?

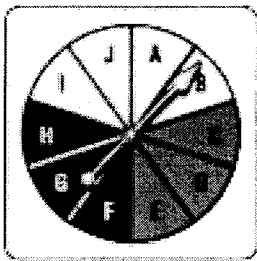
$$1:51$$

D. What is the odds in favor of Sarah not selecting the queen of hearts?

$$51:1$$

12. A jewelry box contains 5 white pearl, 2 gold rings and 6 silver rings. What are the odds of drawing a white pearl from the jewelry box?

$$5:8$$



13. Find the probability of each outcome if the spinner above is spun.

A. white

$$\frac{4}{10} = \frac{2}{5} = .4$$

B. "C"

$$\frac{1}{10} = .1$$

C. gray

$$\frac{3}{10} = .3$$

D. a vowel (A, E, I, O, U)

$$\frac{3}{10} = .3$$

E. black or gray

$$\frac{6}{10} = \frac{3}{5} = .6$$

F. a consonant

$$\frac{7}{10}$$

G. not gray

$$\frac{7}{10}$$

H. not a vowel or consonant

$$0$$

14. Find the odds of each outcome if the spinner above is spun.

A. "D"

$$1:9$$

B. gray

$$3:7$$

C. a vowel

$$3:7$$

D. not black

$$7:3$$

E. "G" or "B"

$$\frac{2}{8} = 1:4$$

F. white or black

$$7:3$$

G. "F" or gray

$$\frac{4}{6} = 2:3$$

H. A letter of the alphabet

$$10:0$$