Probability,
Probability,
Probability!!!

What adverb is very similar to the word probability?

What does it mean?

WHAT IS PROBABILITY?

It describes whether something "_____" will or "_____" will _____ happen.

WHAT IS PROBABILITY?

It describes whether something "probably" will or "probably" will not happen.

This Ratio is expressed as a fraction…shade in the fraction bar on your notes!

T OR SUCCESS FOR ALL
P STION CENTERS AROUND THIS!

The **probability ratio** is

The # of the "wanted" which is

The event U of UPSC

Total # of possibilities which is the **Sample Space**

HOW TO CALCULATE THE PROBABILITY

- First, create the sample space.

HOW TO CALCULATE THE PROBABILITY

- Second, determine the number of the "wanted" in the sample space.

HOW TO CALCULATE THE PROBABILITY

- Third, substitute & solve using the Probability Ratio.

HOW TO CALCULATE THE PROBABILITY

- Fourth, express your probability answer in three ways
  - Simplified Fraction
  - Decimal
  - Percent

EXAMPLE #1

Using a dice numbered from 1-8, What is the probability that you can roll a 2?

Using a dice numbered from 1-8, What is the probability that you can roll a 2?

First, Create the Sample Space. Second, Circle the "wanted."	Substitute & Solve using the probability ratio	Probability Answer as a Simplified Fraction	Probability Answer in Decimal Form	Probability Answer as a Percent

EXAMPLE #2

When flipping a coin, what is the P(tails)?

When flipping a coin, what is the P(tails)?

First, Create the Sample Space. Second, Circle the "wanted."	S of FIS using the probability ratio	Probability Answer as a Simplified Fraction	Probability Answer in Decimal Form	Probability Answer as a Percent

EXAMPLE #3

If you have a bag of letters that spell the word “INTERNET”, What is the probability that you will pull a T or N from the bag?

If you have a bag of letters that spell the word “INTERNET”, What is the probability that you will pull a T or N from the bag?

First, Create the Sample Space. Second, Circle the “wanted.”	Substitute & Solve using the probability ratio	Probability Answer as a Simplified Fraction	Probability Answer in Decimal Form	Probability Answer as a Percent

EXAMPLE #4

Using a dice numbered from 1-8, What is the probability that you can roll a number greater than 6?

Using a dice numbered from 1-8, What is the probability that you can roll a number greater than 6?

First, Create the Sample Space. Second, Circle the "wanted."	Substitute & Solve using the probability ratio	Probability Answer as a Simplified Fraction	Probability Answer in Decimal Form	Probability Answer as a Percent

EXAMPLE #5

If you have a bag of letters that spell the word “INTERNET”, What is the probability that you will **not** pull an E from the bag?

If you have a bag of letters that spell the word “INTERNET”, What is the probability that you will **not** pull an E from the bag?

First, Create the Sample Space. Second, Circle the “wanted.”	Substitute & Solve using the probability ratio	Probability Answer as a Simplified Fraction	Probability Answer in Decimal Form	Probability Answer as a Percent

SOMETIMES, YOU MAY SEE THIS WORD IN PROBABILITY

COMPLEMENT

IN PROBABILITY, COMPLEMENT MEANS

OPPOSITE

Guess what?

Every event has a complement!

LOOK AT EXAMPLE 1 AND PRODUCE THE COMPLEMENT FOR 1C.

Using a dice numbered from 1-8, What is the probability that you can roll a

Using a dice numbered from 1-8, What is the probability that you can roll a 1, 3, 4, 5, 6, 7 or 8?

First, Create the Sample Space. Second, Circle the "wanted."	Substitute & Solve using the probability ratio	Probability Answer as a Simplified Fraction	Probability Answer in Decimal Form	Probability Answer as a Percent

LOOK AT EXAMPLE 2 AND PRODUCE THE COMPLEMENT FOR 2C.

- When flipping a coin, what is the P

When flipping a coin, what is the P(heads)?

First, Create the Sample Space. Second, Circle the "wanted."	Substitute & Solve using the probability ratio	Probability Answer as a Simplified Fraction	Probability Answer in Decimal Form	Probability Answer as a Percent

LOOK AT EXAMPLE 3 AND PRODUCE THE COMPLEMENT FOR 3C.

If you have a bag of letters that spell the word “INTERNET”, What is the probability that you will pull a _____ from the bag?

If you have a bag of letters that spell the word “INTERNET”, What is the probability that you will pull a R, E or I from the bag?

First, Create the Sample Space. Second, Circle the “wanted.”	S of FIS using the probability ratio	Probability Answer as a Simplified Fraction	Probability Answer in Decimal Form	Probability Answer as a Percent

LOOK AT EXAMPLE 4 AND PRODUCE THE COMPLEMENT FOR 4C.

Using a dice numbered from 1-8, What is the P

?

Using a dice numbered from 1-8, What is the P (1, 3, 5 or 7)?

First, Create the Sample Space. Second, Circle the "wanted."	Substitute & Solve using the probability ratio	Probability Answer as a Simplified Fraction	Probability Answer in Decimal Form	Probability Answer as a Percent
1, 2, 3, 4, 5, 6, 7, 8				

LOOK AT EXAMPLE 5 AND PRODUCE THE COMPLEMENT FOR 5C.

If you have a bag of letters that spell the word “INTERNET”, What is the P

If you have a bag of letters that spell the word “INTERNET”, What is the P (E)?

First, Create the Sample Space. Second, Circle the “wanted.”	Substitute & Solve using the probability ratio	Probability Answer as a Simplified Fraction	Probability Answer in Decimal Form	Probability Answer as a Percent
I NTER NET				

NOW, LET'S MERGE EVERYTHING TOGETHER!

Find this chart on the back of your notes repeated five different times!

Work together and complete the chart for each event and its complement!

1 Fraction	**1c Fraction**	**Sum of 1 and 1c**
1 Decimal	1c Decimal	Sum of 1 and 1c
1 Percent	1c Percent	Sum of 1 and 1c

SOME THINGS SHOULD HAVE POPPED OUT AT YOU!

AN EVENT AND ITS COMPLEMENT ARE _____ SO

The fraction sum of their probabilities must equal_____.

The decimal sum of their probabilities must equal____.

The percent sum of their probabilities must equal ____.

THE TOPICS OF TODAY ARE EXPERIMENTAL PROBABILITY AND THEORETICAL PROBABILITY!

What words are new?

What is the root word of experimental?

What is the root word for theoretical?

Using common sense, try to fill in the blank below using the words really and should.

Theoretical Probability is what _____ happen **BUT** Experimental Probability is what _____ happens.

FOR THE RECORD…..

Theoretical Probability is what ___should___ happen BUT Experimental Probability is what ___really___ happens.

GROUP RELAY #1

Jolene is playing basketball. She scored 11 baskets in 15 free throws. What is the experimental probability that she will score a basket on her next free throw?

1. Using no more than eight words, write down what the question is asking you to find.
2. Is it experimental or theoretical?
3. List the strategies that you are using to solve this question.
4. Your final answer must be expressed as a fraction. NW=NC

Round any decimals to the nearest thousandths if necessary.

GROUP RELAY #2

At a school health fair, individual pieces of fruit are placed in paper bags and distributed to students randomly. There are 20 apples, 15 apricots, 25 bananas, 25 pears, and 30 peaches.

the probability of **not** getting an apple _____

1. Using no more than eight words, write down what the question is asking you to find.
2. Is it experimental or theoretical?
3. List the strategies that you are using to solve this question.
4. Your final answer must be expressed as a fraction.

No work = No credit

GROUP RELAY #3

Sarah has gone to work for 60 days. On 39 of those days, she arrived at work before 8:30 A.M. On the rest of the days she arrived after 8:30 A.M. What is the experimental probability she will arrive after 8:30 A.M. on the next day she goes to work?

1. Using no more than eight words, write down what the question is asking you to find.
2. Is it experimental or theoretical?
3. List the strategies that you are using to solve this question.
4. Your final answer must be expressed as a percent. NW=NC

Round any decimals to the nearest thousandths if necessary.

GROUP RELAY #4

A bowler knocks down at least 6 pins 70 percent of the time. Out of 200 rolls, how many times can you predict the bowler will knock down at least 6 pins?

1. Using no more than eight words, write down what the question is asking you to find.
2. Is it experimental or theoretical?
3. List the strategies that you are using to solve this question.
4. Now solve the question.

Round any decimals to the nearest thousandths if necessary.

GROUP RELAY #5

At a school health fair, individual pieces of fruit are placed in paper bags and distributed to students randomly. There are 20 apples, 15 apricots, 25 bananas, 25 pears, and 30 peaches.

the probability of getting an orange _____

1. Using no more than eight words, write down what the question is asking you to find.
2. Is it experimental or theoretical?
3. List the strategies that you are using to solve this question.
4. Your final answer must be expressed as a fraction, decimal and percent. No Work = No Credit

Round any decimals to the nearest thousandths if necessary.

GROUP RELAY #6

Gill rolls a number cube 78 times. How many times can he expect to roll an odd number greater than 1?

1. Yes or No: As a group, do you feel that it is necessary to find the theoretical probability before attempting to answer this question?
2. List the strategies that you are using to solve this question.
3. What is your final answer?

GROUP RELAY #7

In a current-events class, a professor predicted that at least 78 percent of students prefer getting their news from a digital source rather than from a print source. He polled 3 classes. The results are shown in the table below.

	Class 1	Class 2	Class 3
Digital	20	14	30
Print	5	10	7

In which class(es) did his prediction hold true? Explain.

1. Fill in the blank: To solve this question, we must find the _____ _____for each class FIRST!
2. What is the experimental probability percent for Class 1?
3. What is the experimental probability percent for Class 2?
4. What is the experimental probability percent for Class 3?
5. Your final answer must be expressed as a complete sentence.

Round any decimals to the nearest thousandths if necessary.

GROUP RELAY #8

At a school health fair, individual pieces of fruit are placed in paper bags and distributed to students randomly. There are 20 apples, 15 apricots, 25 bananas, 25 pears, and 30 peaches.

1. Using no more than eight words, write down what the question is asking you to find.
2. Is it experimental or theoretical?
3. List the strategies that you are using to solve this question.
4. Your final answer must be expressed as a fraction, decimal and percent. No Work = No Credit

Round any decimals to the nearest thousandths if necessary.

GROUP RELAY #9

A shoebox holds a number of disks of the same size. There are 5 red, 6 white, and 7 blue disks. You pick out a disk, record its color, and return it to the box. If you repeat this process 250 times, how many times can you expect to pick either a red or white disk?

1. Using no more than eight words, write down what the question is asking you to find.
2. Is it experimental or theoretical?
3. List the strategies that you are using to solve this question.
4. Your final answer must be expressed as a fraction, decimal and percent. No Work = No Credit

Round any decimals to the nearest thousandths if necessary.

GROUP RELAY #10

For the past four weeks, Micah has been recording the daily high temperature. During that time, the high temperature has been greater than 45°F on 20 out of 28 days. What is the experimental probability that the high temperature will be below 45°F on the twenty-ninth day?

1. Using no more than eight words, write down what the question is asking you to find.
2. Is it experimental or theoretical?
3. List the strategies that you are using to solve this question.
4. Your final answer must be expressed as a fraction, decimal and percent. No Work = No Credit

Round any decimals to the nearest thousandths if necessary.