



The Creative Team

Designer

RIA CHADDHA, 12C



Editors

SIDDHARTH SINGH, 12B
ZOYA ZOHEB, 12B

Content Writers

DARSH MITTAL, 8A
GHHANALI SINGH, 10A
DEEPANK SAINI SADH, 10B
VEDANK SAINI SADH, 6A
SAMIK MITTAL, 10C



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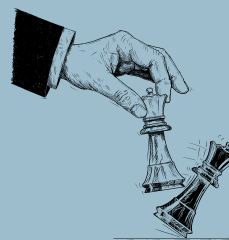


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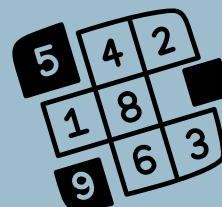
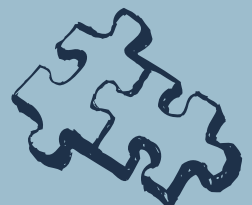
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ITS PUZZLE TIME!

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A timeless placement
game that can awaken
your problem solving
senses

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THE MAGIC IN MATH



WHAT ARE THE CHANCES?

~ A Quick Look at Probability ~

Ever flipped a coin and hoped for heads? That's probability in action! Probability is the math of chance—it tells us how likely something is to happen. It's measured from 0 (impossible) to 1 (certain). For example, the chance of getting heads in a coin toss is $\frac{1}{2}$.



Where Do We See Probability?

- Weather forecasts (30% chance of rain ☁️)
- Games (like rolling dice 🎲)
- Medicine (how likely a treatment works)
- AI and tech (how apps make smart guesses)

Two Types:

- Theoretical probability is based on logic.

Example:

Chance of rolling a 3 on a die = $\frac{1}{6}$

- Experimental probability is based on actual results.

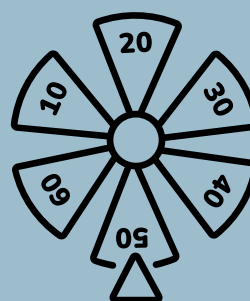
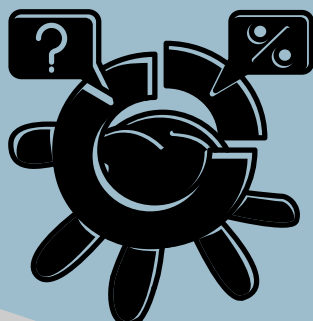
Example: Roll a die 60 times, get 3 fifteen times $\rightarrow \frac{15}{60} = \frac{1}{4}$



Probability gives us a powerful lens to look at uncertainty. While we can't always control outcomes, understanding the math behind them helps us make better decisions—whether we're guessing a coin toss, choosing a strategy in a game, or evaluating real-world risks.

In a group of just 23 people, there's over a 50% chance two people share a birthday. Surprising? That's probability!

Next time you make a guess, remember: there's math behind the magic!



~ Darsh Mittal, 8A



CHESS AND ITS GAME OF PROBABILITY



One of the most fascinating aspects of Mathematics is the study of 'Probability', which in layman's terms is defined simply as the likeliness of an event. Mathematically, it encompasses the inquest of the likelihood of the occurrence of a random event. Probability is not just a numerical formula - it is a subject which aims to be able to predict, accurately, the outcome of an event. Researchers throughout time have been engrossed in the study of likeliness and its startlingly helpful applications. For one, probability is one of the four main Math concepts used in the development of Artificial intelligence engines. However, it's not limited to just technology and math. It is hypothesized to be able to predict behavior and decision making in the human brain. Studies by notable researchers connect probability and psychological effects- a study which may have drastic outcomes.

The two extremes are 0 and 1, and probability is expressed between them. To provide an éclaircissement, an event can at the most be impossible or certain. If today is Monday, the probability of tomorrow being Tuesday is certain, and is expressed as 1. The probability of tomorrow being, say, Thursday, is impossible, and is thus expressed as 0. With this basic knowledge, we can now delve deeper into the aspects and flabbergasting applications of this riveting subject. The topic is vast and ranges from experimental probability, theoretical probability to the Bayes' Rule and beyond. In this article.

From the carefully calculated moves and tactics of the game to clever positions which seem to have every piece in place, chess is a game of wit and intellection. I'm assuming my readers have a basic understanding of the game.

As I mentioned, chess is based on pre-calculated moves, predictions and tactics. However, the question posed in this article is - Can you win chess by playing random moves? We know that chess is the ultimate strategy game. So, what is the chance that a player playing completely random moves wins the game? There is no luck involved in chess - but what is the possibility that a random move accidentally wins a game? Many games and matches are won sometimes by pure luck. Although rare, it is quite possible.

Before we move on, let us try to visualize just how vast this topic is. I believe that all of us are aware of atoms- and their indescribably tiny size. A large number of atoms exist in the universe and make up everything around us, a number we cannot imagine. Do you know how many unique chess games are possible? At the very first move, the player has 20 moves to play. After just the fourth move, the player has 318,979,564,000 possible moves. So, some mathematicians figured out (I really respect them for it), that the estimated possible number of unique chess games is 10^{120} . A number known as Shannon's number. A Quintillion has 18 zeroes. A billion, which we seem to think is huge, has 9 zeroes. Some of your mathematical minds may be familiar with a number known as a googolplex or 10^{100} . So, if you can wrap your brain around it... Try to think of a number with 120 zeroes. That is the number of possible unique chess games. Oh yes. It is vastly more than the total number of atoms estimated to be there in the universe.

~ Ghhanali Singh, 10A

PROBABILITY in Life

Probability is the branch of mathematics that deals with the chance of something happening. It helps us predict outcomes when there is uncertainty. Whether it's checking the weather forecast or playing a board game, probability is all around us. At its core, probability is a number between 0 and 1. If something definitely won't happen, the probability is 0. If something is certain to happen, the probability is 1. Anything in between shows how likely an event is. For example, if the weather report says there's a 0.8 (or 80%) chance of rain, it means it's very likely to rain, but not certain.

Weather Forecasting

Weather apps use probability to tell you how likely it is to rain, snow, or be sunny. Meteorologists study patterns using data and models to estimate these chances. If there's a 60% chance of rain, you might carry an umbrella—just in case.

Games and Sports

Board games and card games often involve probability. For example, when rolling a standard 6-sided die, the probability of rolling a 3 is 1 out of 6, or about 0.166. In cricket or football, coaches use statistics to decide which player to pick or which strategy to use based on past performances.

Exams and Studying

If you've studied 8 out of 10 chapters for an exam, the probability that a question will come from the chapters you studied is $\frac{8}{10}$ or 0.8 (80%). This doesn't guarantee success, but it gives you a good idea of your chances.

Traffic and Travel

Apps like Google Maps or Uber use probability and real-time data to estimate how long a journey might take. If there's a 70% chance of traffic at 8 AM, you might decide to leave early.

Medicine

Doctors use probability when diagnosing patients. If a test is 95% accurate, it means it gives the correct result 95 times out of 100. Doctors also use probabilities to discuss risks of diseases and success rates of treatments.

Tossing a Coin

A coin has two outcomes—heads or tails. If the coin is fair, the chance of either is 0.5 or 50%. This is a classic example taught in schools to explain probability.

Job Interviews

Let's say 10 people are being interviewed for 2 positions. If all candidates have an equal chance, then your probability of getting selected is $\frac{2}{10}$ or 0.2 (20%).

Lottery and Contests

Lotteries involve very low probabilities. For example, winning a big jackpot might have a chance of 1 in 10 million. That's why it's so hard to win!

Why it matters?

Understanding probability helps us make smart decisions. It teaches us to weigh risks and rewards. While we can't predict the future with certainty, probability gives us a tool to make more informed choices. In school, probability may seem like just numbers and fractions, but in real life, it's a powerful idea that shows up everywhere. From sports to science, from shopping to studying, it helps us understand and manage uncertainty in a smart way.



~ Deepank Saini Sadh, 10B

PENNY, NICKEL AND DIME

Probability is the chance for some possible event to take place. Let us say you have 5 pennies, 2 dimes and 1 nickel. Which coin will be picked randomly? We have the most pennies; the chance of choosing that is likely, as we have a lot of them, the chance of getting a dime or nickel is unlikely.

Now, suppose you had 2 pennies & 2 nickels. If you picked one random coin, the chances are even; you have both coins at an equal number. Similarly, if you had 4 pennies and nothing else, the chance of getting a penny is certain, and getting another coin is impossible.

Keep in mind that probability can change. Suppose you have 4 pennies, then you find a nickel, the chance of getting a penny was certain, but now it is likely getting a nickel was impossible; now it is unlikely.

This is basic probability; in higher classes you will learn better, till then. See you later!

~ Vedank Saini Sadh, 6A

IRRELEVANT FUN FACTS

(because... well, why not?)

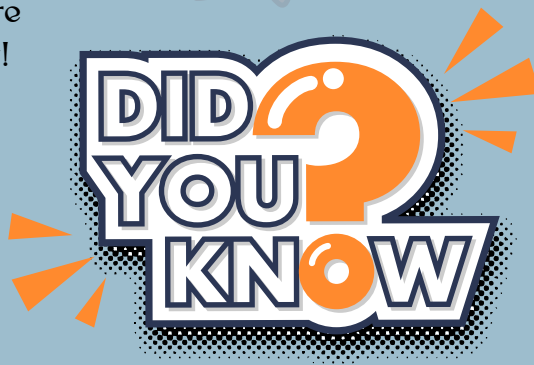
The largest number that a standard Roman numeral can represent is 3999 (MMMCMXCIX).

Try to form a bigger one, considering you can't repeat a numeral more than three times consecutively!

If you shuffle a deck of cards properly, it's more than likely that the exact order of the cards you get has never been seen before in the whole history of the universe.

"Eleven plus two" is an anagram* of "twelve plus one", which is pretty fitting, as the answer to both equations is 13. Also, there are 13 letters in both "eleven plus two" and "twelve plus one".

The numbers on opposite sides of a standard die always add up to seven



Every odd number contains the letter 'e' in its English spelling

The word "hundred" comes from the old Norse term, "hundrath", which actually means 120 and not 100.

Most mathematical symbols weren't invented until the 16th century. Before that, equations were written in words.

"Forty" is the only number that is spelt with letters arranged in alphabetical order.

Anagram*: Yes, I know you just asked what an anagram was. It basically is a word, phrase, or name formed by rearranging the letters of another. You can try it in this case too :)

~ Ria Chaddha, 12C

LET'S TALK PROBABILITY

~ The Math Behind Life's Uncertainties ~

Have you ever guessed whether it would rain before leaving home without an umbrella? Or hoped to roll a six in a board game? If yes, congratulations — you've already dabbled in probability! Probability is the math of chances — a way of measuring how likely something is to happen. From tossing coins to predicting weather or planning insurance, probability helps us make sense of an uncertain world.

So, What Exactly Is Probability? Imagine you're tossing a coin. You know it can land in only two ways — heads or tails. Since both are equally likely, you'd say the chance of getting heads is 1 out of 2, or 0.5.

That's Probability!
$$\text{Probability} = \frac{\text{Favourable outcomes}}{\text{Total possible outcomes}}$$

So if you roll a die, the chance of getting a 4 is: $P(4) = 1/6$. Simple, right?

Different Flavours of Probability:

There isn't just one kind of probability — there are a few ways to think about it:

- **Theoretical Probability:** Based on logic. Like saying there's a 1 in 6 chance of rolling a 6.
- **Experimental Probability:** Based on actual experiments. You roll a die 100 times and see how often 6 shows up.
- **Subjective Probability:** Based on personal feelings or opinions. Like saying, "I feel there's a 90% chance India will win today."

Where Do We See Probability in Real Life?

Turns out, everywhere. Seriously.

- **Weather Reports:** When you hear "70% chance of rain," that's probability.
- **Sports & Games:** Betting odds, team predictions, and game strategies are built on probability.
- **Medicine:** Doctors use probability to predict risks and treatment outcomes.
- **Finance & Insurance:** Insurance companies use it to figure out how likely something is to happen — and how much they should charge.
- **Even Google search, spam filters, and Netflix recommendations use probability in their algorithms!**

Common Mistakes People Make

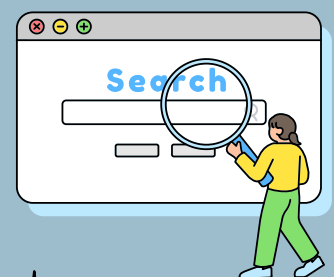
One of the biggest traps is something called the Gambler's Fallacy. Say a coin lands on heads five times in a row — you might feel like tails is "due" next. But guess what? The chance of tails is still 0.5. Each flip is independent.

Why It Matters?

Probability isn't just about math class or board games. It helps us make better decisions, understand risks, and see patterns in the world around us. It teaches us that while we can't always control outcomes, we can think smartly about them.

So next time you flip a coin or hear a weather report, remember — there's a bit of math quietly working behind the scenes.

~ Samik Mittal, 10C



CHANCE'S GAME

A coin flips, the dice will roll,
Probability takes control.
Will it be yes, will it be no?
Only the odds will ever show.
In every choice, in every chance,
Life's a game of circumstance.
So play along, don't be afraid—
Probability's the hand we're dealt and played.

~ Zoya Zoheb, 12B

THOSE WHO MADE A MARK

Blaise Pascal (1623-1662) was a French mathematician, physicist, inventor, and philosopher. In 1654, through correspondence with Pierre de Fermat, he solved the problem of points—how to fairly divide stakes in an unfinished game of chance. Using combinatorics to count all possible outcomes, Pascal introduced concepts like expected value, laying the foundation for probability as a branch of mathematics. He also popularized Pascal's Triangle, essential for calculating combinations. Before him, probability relied on guesswork; his methods brought structure, influencing statistics, economics, insurance, and modern decision-making.

Thomas Bayes (1701-1761), an English statistician, philosopher, and Presbyterian minister, is best known for formulating Bayes' Theorem, which updates the probability of an event based on new evidence. Though unpublished in his lifetime, his manuscript was presented by Richard Price in 1763, becoming central to Bayesian probability—interpreting probability as a changing measure of belief. Today, Bayesian methods are widely applied in artificial intelligence, medicine, economics, and even spam filtering. Bayes' work transformed probability from static calculation to a dynamic tool for reasoning under uncertainty.

Sir Ronald A. Fisher (1890-1962), a British statistician, geneticist, and biologist, is often called the father of modern statistics. He developed tools like maximum likelihood estimation, analysis of variance (ANOVA), and key principles of experimental design. Fisher applied probability to real-world data, formalized null hypothesis testing, and emphasized randomization to eliminate bias. His integration of statistics with genetics helped form the modern synthesis of evolutionary biology. Through his books and methods, Fisher turned probability into an essential part of scientific research, medicine, and social studies.

~ Siddharth Singh, 12B



PUZZLE BUZZ AND MATH FUZZ



RIDDLE WHIRL AND BRAIN TWIRL

TWO FATHERS
AND TWO SONS
WENT FISHING,
AND EACH
CAUGHT ONE FISH,
RESULTING IN
THREE FISH
TOTAL.

Grandfather, Father, Son
(Only 3 people)

IN A ROOM OF 23
PEOPLE, WHAT'S THE
CHANCE THAT AT
LEAST TWO SHARE A
BIRTHDAY?

50%

ON A FARM, THERE
ARE DUCKS AND
COWS. THERE ARE 18
LEGS AND 7 HEADS
IN TOTAL. HOW
MANY DUCKS ARE
THERE?

5

BOB OPENED A BOOK
AND DISCOVERED
THAT THE SUM OF
THESE TWO-PAGE
NUMBERS WAS 21. BUT
WHAT DO YOU GET IF
YOU MULTIPLY THESE
TWO NUMBERS?

$10 \times 11 = 110$

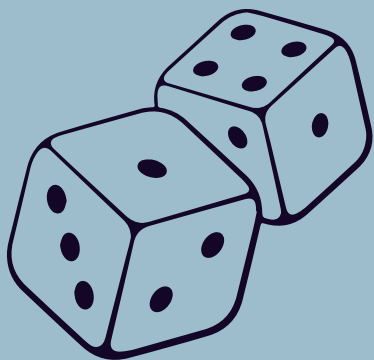
IT'S RAINING AT
MIDNIGHT, BUT THE
FORECAST FOR
TOMORROW AND THE
NEXT DAY IS CLEAR.
WILL THERE BE
SUNNY WEATHER IN
48 HOURS?

No - In 48 hours, it will
be midnight again.

WHAT CAN YOU PUT
BETWEEN 7 AND 8, TO
MAKE THE RESULT
GREATER THAN 7, BUT
LESS THAN 8?

A decimal (7.8)

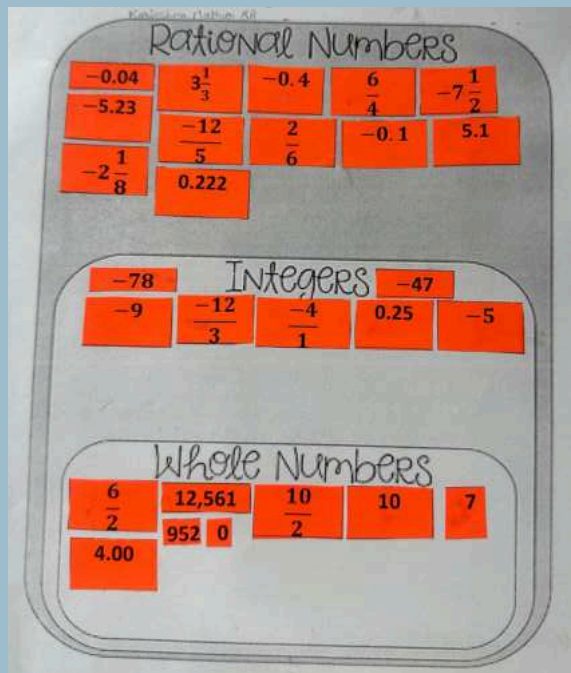




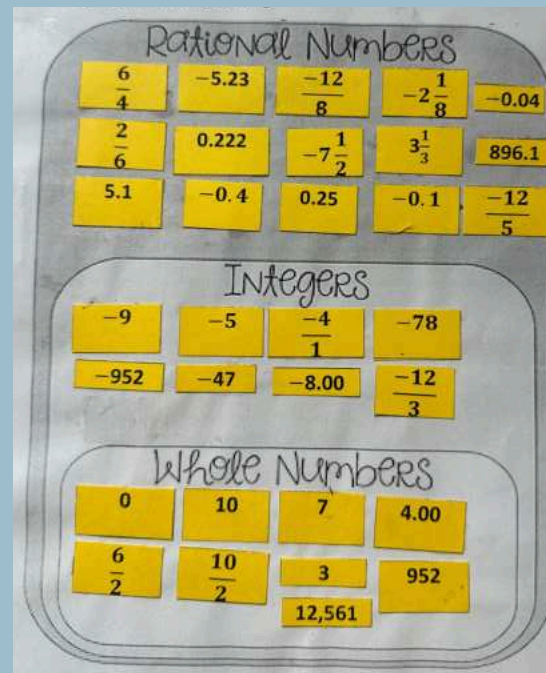
Sudoku Quest and Number Nest

4				9		8		6
					8			
3			7					9
9		4						
				3			1	
5		1			2			3
	1		8					
					7		5	1
2		5		1		3		7

Pi-CASSO PAGE



Karieshma Mathur, 8A



Aarohi Jain, 8A

ARTHEMATICS



Ashwika, 6A



Sanav, 6B



Anhad, 6A



Anahita, 6B