Playing with Dights

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Digits are the single numbers from 0 to 9 that make up larger numbers.

By changing the order or applying operations, we can form new numbers.

Understanding digits helps in number formation, place value, and arithmetic operations.

1. Place Value and Face Value

- Place Value: The value of a digit based on its position in a number.
- Face Value: The digit itself, regardless of its position.

Example: In 4,532

- Place value of 5 = 500 (as it is in the Hundreds place)
- Face value of 5 = 5

2. Forming Numbers using Digits

Digits can be arranged in different ways to form the smallest or largest numbers.

Example: Using the digits 3, 7, 2

- Smallest number = 237
- Largest number = 732

3. Changing the Digits

Swapping digits changes the number's value.

This is useful in puzzles and number-based problems.

Example:

- Original Number: 452
- Swapping 4 and 2: 254

4. Finding a Mystery Number

Example Question:

- I am a 3-digit number.
- My hundreds digit is 4.
- My tens digit is half of 8.
- My ones digit is 3 more than 2.

What is my number?

Solution:

- Hundreds digit = 4
- Tens digit = 4 (Half of 8)
- Ones digit = 5 (3 more than 2)

Answer: 445

5. Reverse and Add Rule

Take a number, reverse its digits, and add them.

Example:

- Number: 32
- **Reverse:** 23
- Sum: 32 + 23 = 55

6. Palindrome Numbers

Numbers that read the same forward and backward.

Example: 121, 1331, 444.

Properties of Playing with Digits

- i. Reversing digits gives new numbers but does not change the sum of the digits.
- ii. Multiplying a number by 9 gives a sum of digits equal to 9.
- iii. Palindromic numbers remain the same when reversed.
- iv. Changing the order of digits can create different numbers.
- v. The sum of the digits of multiples of 3 is always divisible by 3.