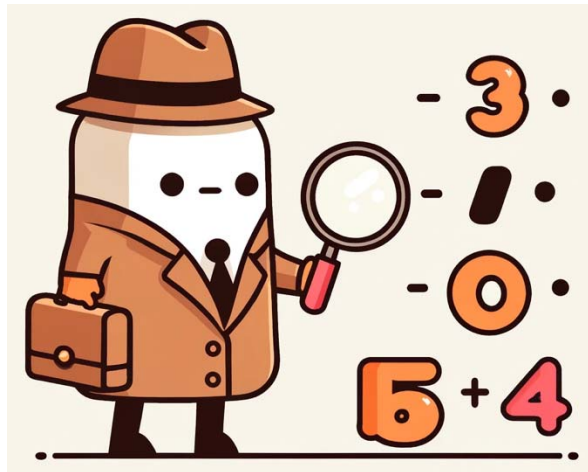


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## Divisibility Detective: Cracking the Code of Divisibility Rules

Welcome, young mathematicians, to the world of divisibility rules, where numbers reveal their secrets through patterns and rules! In this adventure, we'll learn how to determine if a number is divisible by another number without the need for complicated calculations. So grab your detective hats and let's dive in!

To begin our journey, let's first understand what it means for one number to be divisible by another. When we say that a number is divisible by another number, it means that the first number can be divided evenly by the second number without leaving a remainder. For example, 10 is divisible by 2 because  $10 \div 2 = 5$  with no remainder.

Now, let's uncover the secret codes, known as divisibility rules, that help us quickly determine if a number is divisible by another:

- **Divisibility by 2:** A number is divisible by 2 if its last digit is even (0, 2, 4, 6, or 8). For example, 24 is divisible by 2 because its last digit is 4.
- **Divisibility by 3:** A number is divisible by 3 if the sum of its digits is divisible by 3. For example, 27 is divisible by 3 because  $2 + 7 = 9$ , which is divisible by 3.
- **Divisibility by 4:** A number is divisible by 4 if the number formed by its last two digits is divisible by 4. For example, 148 is divisible by 4 because 48 is divisible by 4.
- **Divisibility by 5:** A number is divisible by 5 if its last digit is either 0 or 5. For example, 75 is divisible by 5 because its last digit is 5.
- **Divisibility by 6:** A number is divisible by 6 if it is divisible by both 2 and 3. For example, 36 is divisible by 6 because it is divisible by both 2 and 3.

These are just a few of the divisibility rules that mathematicians have discovered over the years. By applying these rules, you can quickly determine whether a number is divisible by another, saving time and effort in your mathematical adventures.