# NUMBER PATTERNS

A number pattern is a **group of numbers that are related to one another in some sort of pattern**. Finding a pattern is a simpler way to solve a problem.

With number patterns, sometimes a series of numbers are given and the next three numbers are required. In this case, the number pattern would have to be figured out and then the next numbers could be given.

Sometimes, a **pattern is given in words** and is asking for the numbers.

Another example of number patterns is a **word problem**. In this case, a pattern would have to be figured out so the answer to the problem can be given.

**Prime fac**th prime factorizatic bers are left. The r This is an easier way .



## How to u

- The first step when given **numbers in a pattern** is to look at the numbers for some kind of relationship. A common pattern used is numbers that are multiples of a number.

- Once a pattern is established, follow the pattern to give the next numbers if asked.

In the example below, the pattern is each number equals the addition of the two previous numbers.

*Example:*

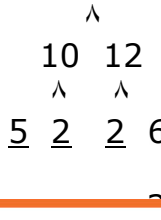
**1, 1, 2, 3, 5, 8, 13, ___, ___, ___... → 21, 34, and 55**

- When **number patterns are given in words**, the pattern must be followed to be able to give the amount of numbers requested. A number pattern that states, "Write the first five numbers starting with 4 of a pattern that multiplies the previous number by two." would be: 4, 8, 16, 32, 64.

- **Prime factorization** is another type of number pattern in which a large number is broken down into only prime numbers. The numbers are then written with exponents as shown below.

  *Example:*

  **prime factorization** of **120**




**x 2³ x 3**



## Try this!

**1. What**

3, 6, 9

1, 3, 5, 7, 9...

2, 7, 12, 17, 22...

**2. Give the first 4 numbers of the following patterns starting with 2:**
Each number is three more than the previous number.

**3. Give the first 4 numbers of the following patterns starting with 8:**
Each number is two times more than the previous number.

**4. Give the prime factorization for the following numbers:**

| | | | |
|---|---|---|---|
| 76 | 154 | 220 | 448 |