Definition: addition from *The Hutchinson Unabridged Encyclopedia with Atlas and Weather Guide*

In arithmetic, the operation of combining two numbers to form a sum; thus, $7 + 4 = 11$. It is one of the four basic operations of arithmetic (the others are subtraction, multiplication, and division).

Summary Article: *Lesson 1-2: Addition*

From *Homework Helpers: Basic Math and Pre-Algebra*

To get started, we should begin by reviewing the principles of addition. The symbol for addition is $+$, and the numbers to be added are called *addends*. The result of the addition is called the *sum*. The symbol for what the sum is equal to is the equal sign, $=$. With addition, the order doesn't matter. The sum $3 + 8$ and the sum $8 + 3$ are the same. Because the order that we add things doesn't matter, we say that addition is *commutative*.

Sometimes addition is written horizontally: $6 + 3 = 9$. Other times addition is written vertically. When written vertically, the horizontal line represents the equal sign. The vertical representation is particularly useful when you are adding two numbers with two or more digits. It helps keep track of the places for the ones, tens, hundreds, etc. by writing the two numbers in a column format with those places aligned:

```
  6
+ 3
---
  9
```

**Example 1**

Find the sum: $23 + 35$

**Solution:**

```
  23
+ 35
--
  58
```

If the sum of the digits in the ones' column is greater than 9, you will need to carry over to the tens' column. To *carry over* is to bump up the number in the place immediately to the left of the column under consideration. Carry-over from the ones' place will increase the number in the tens' place. Carry-over from the tens' place will bump up the number in the hundreds' place, and so on. The next examples will help illustrate this point.

**Example 2**

Find the sum: $54 + 29$

**Solution:** When we add the numbers in the ones' place, we have $4 + 9 = 13$; this means we need to carry a 1 over to the tens' place:

```
  54
+ 29
---
  83
```
Example 3

Find the sum: 156 + 68

Solution: When we add the numbers in the ones’ place, we have 6 + 8 = 14; this means we need to carry a 1 over to the tens’ place. We will also need to carry over to the hundreds’ place:

\[
\begin{array}{c}
156 \\
+ 68 \\
\hline
224
\end{array}
\]

We can add three numbers together as well. To find the sum 2 + 6 + 4, we could either first find 2 + 6 and then add that result to 4, or we could find 6 + 4 and then add 2 to that result. Either way we would get an answer of 12.

Because we can group addition in any way, we want we say that addition is **associative**.

Lesson 1-2 Review

Find the following sums:

1. 62 + 33
2. 84 + 18
3. 136 + 158
4. 716 + 237