



Place Value of Whole Numbers

How do we write numbers?

Numbers are written by using digits.

What is a digit?

0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 are all digits.

Example 1

If we look at the numbers:

384 and 452

Both of these numbers have a four, but are they in the same place?

No, in 384 the 4 is located in the **ones** place value and in 452 the 4 is located in the **hundreds** place value.

Example 2

In the number 3 523 917 -

Where are the ones? Tens? Hundreds? Thousands? Ten thousands? Hundred thousands? Millions?

How do we read this number?

Three million, five hundred twenty three thousand, nine hundred seventeen

Example 3

If we are comparing numbers, how do we decide which number is bigger?

Is 735 less than ($<$) or greater than ($>$) 794?

We always read our numbers from left to right.

Step #1 - We begin with the first number on the left. We see that the numbers in the hundreds place are the same - they are both seven.

Step #2 - We look at the next number (the tens). Which is greater? 9 is greater than 3, therefore 794 is greater than ($>$) 735.

Expanded and Standard Form

When we see a number in the form 87 123, this is called standard form.

There is another way of writing a number; we call this expanded form. What does the word expanded mean?

So, in expanded form we see the place value of each digit!

Expanded Form

Let's jump straight into an example.

Let's say we have 5 467 (this is now in Standard Form)

How many thousands (1 000) do we have? 5

How many hundreds (100) do we have? 4

How many tens (10) do we have? 6

How many ones (1) do we have? 7

Expanded Form

Example continued

We now know we have:

5 thousands (5×1000)

4 hundreds (4×100)

6 tens (6×10)

7 ones (7×1)

Let's put it all together:

Standard Form	Expanded Form
5 467	$(5 \times 1000) + (4 \times 100) + (6 \times 10) + (7 \times 1)$

Expanded Form

Example #2

Let's say we have 27 120 (this is now in Standard Form)

How many ten thousands (10 000) do we have? 2

How many thousands (1 000) do we have? 7

How many hundreds (100) do we have? 1

How many tens (10) do we have? 2

How many ones (1) do we have? 0

Example continued

We now know we have:

2 ten thousands ($2 \times 10\,000$)

7 thousands ($7 \times 1\,000$)

1 hundreds (1×100)

2 tens (2×10)

0 ones (0×1)

Let's put it all together:

Standard Form	Expanded Form
27 120	$(2 \times 10\,000) + (7 \times 1\,000) + (1 \times 100) + (2 \times 10) + (0 \times 1)$

Homework

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