Place Value and Whole Numbers

The number system we use is based on units of 10. A number like 7,825 is a **whole number**. A digit and its **place-value** position name a number. For example, in 7,825, the digit 7 is in the thousands place, and its value is 7,000.

Place-Value Chart

1,000,000,000	100,000,000	10,000,000	1,000,000	100,000	10,000	1,000	100	10	1
one billion	hundred millions	ten millions	one million	hundred thousands	ten thousands	thousandds	hundreds	tens	ones
						7,	8	2	5

> Each set of three digits is called a period. Periods are separated by a comma.

EXAMPLE   Identify Place Value

1 **Identify the place-value position of the digit 9 in 597,240,618.**

1,000,000,000	100,000,000	10,000,000	1,000,000	100,000	10,000	1,000	100	10	1
one billion	hundred millions	ten millions	one million	hundred thousands	ten thousands	thousandds	hundreds	tens	ones
	5	9	7,	2	4	0,	6	1	8

The digit 9 is in the ten millions place.

Numbers written as 7,825 and 597,240,618 are written in **standard form**. Numbers can also be written in **word form**. When writing a number in word form, use place value. At each comma, write the name for the period.

EXAMPLES   Write a Whole Number in Word Form

Write each number in word form.

2 **4,567,890**

Standard Form	4,567,890
Word Form	four million five hundred sixty-seven thousand eight hundred ninety

3 **804,506**

Standard Form	804,506
Word Form	eight hundred four thousand five hundred six

Numbers can also be written in **expanded notation**.

EXAMPLE **Write a Whole Number in Expanded Notation**

4 **Write 28,756 in expanded notation.**

Step 1 Write the product of each digit and its place value.

$20,000 = (2 \times 10,000)$ The digit 2 is in the ten thousands place.
$8,000 = (8 \times 1,000)$ The digit 8 is in the thousands place.
$700 = (7 \times 100)$ The digit 7 is in the hundreds place.
$50 = (5 \times 10)$ The digit 5 is in the tens place.
$6 = (6 \times 1)$ The digit 6 is in the ones place.

Step 2 Write the sum of the products.

$28,756 = (2 \times 10,000) + (8 \times 1,000) + (7 \times 100) + (5 \times 10) + (6 \times 1)$

> This is 28,756 written in expanded notation.