Chapter 1 - The Whole Numbers
1.2 Place Value, Names for Numbers, and Reading Tables
1.2 Exercise Set, page 13: 1, 6, 9, 15, 29, 36

1.3 Adding Whole Numbers and Perimeter
1.3 Exercise Set, page 23: 3, 11, 13, 41, 45, 61

1.2 Exercise Set MyLab Math

Objective A *Determine the place value of the digit 5 in each whole number. See Examples 1 through 3.*

5. 43,526,000

100,000 is the place value

Memorize

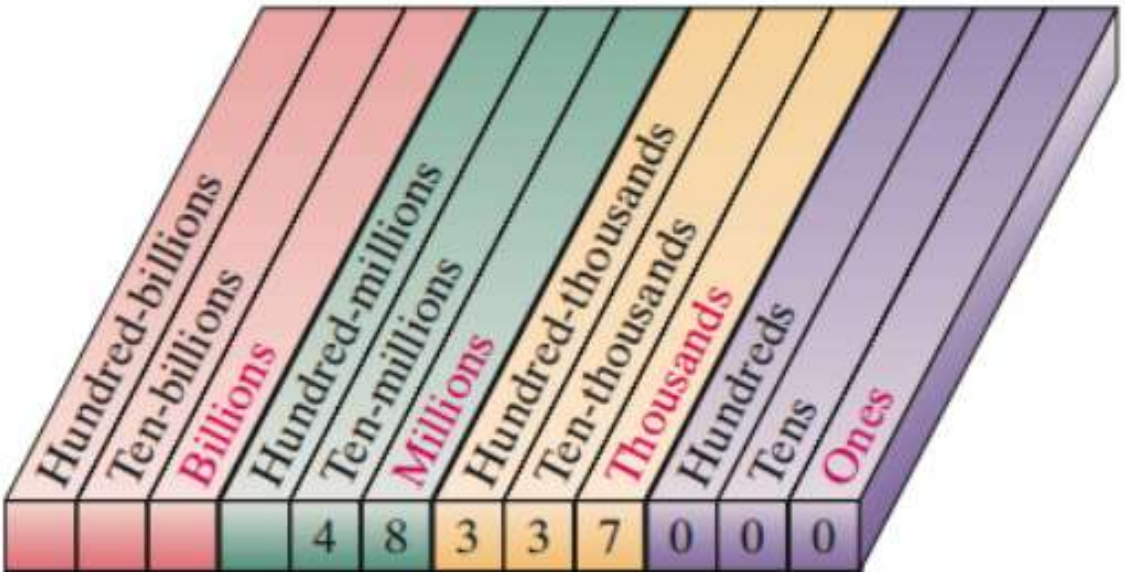
The **digits** 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9 can be used to write numbers. For example, the **whole numbers** are

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, . . .

and the **natural numbers** are 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, . . .

The three dots (. . .) after each 11 means that these lists continue indefinitely. That is, there is no largest whole number. The smallest whole number is 0. Also, there is no largest natural number. The smallest natural number is 1.

Memorize



Be able to do this.

For example, we write 1,083,664,500 as

one **billion,**
eighty-three **million,**
six hundred sixty-four **thousand,**
five hundred

Memorize the process

The place value of a digit can be used to write a number in expanded form. The **expanded form** of a number shows each digit of the number with its place value. For example, 5672 is written in expanded form as

5	thousands	+	6	hundreds	+	7	tens	+	2	ones
↑ digit	↑ place value		↑ digit	↑ place value		↑ digit	↑ place value		↑ digit	↑ place value
↓			↓			↓			↓	
5672 =	5000	+		600	+		70	+		2

1.2

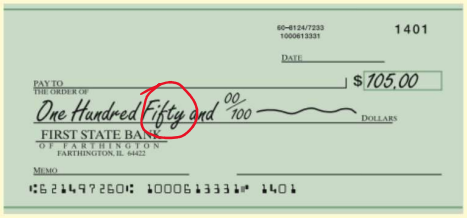
Check to see whether each number written in standard form matches the number written in words. If not, correct the number in words. See the Concept Check in this section.

71. 1401

72. 1402

Check to see whether each number written in standard form matches the number written in words. If not, correct the number in words. See the Concept Check in this section.

71.



72.

One hundred five and zero hundredths

Carrying

$$\begin{array}{r} {\scriptstyle 1} \\ 365 \\ +\ 89 \\ \hline 4 \end{array}$$

5 ones + 9 ones = **14 ones** or **1 ten** + **4 ones**

Write the 4 ones in the ones place and carry the 1 ten to the tens place.

Next, add the tens-place digits.

$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 365 \\ +\ 89 \\ \hline 54 \end{array}$$

1 ten + 6 tens + 8 tens = **15 tens** or **1 hundred** + **5 tens**

Write the 5 tens in the tens place and carry the 1 hundred to the hundreds place.

Next, add the hundreds-place digits.

$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 365 \\ +\ 89 \\ \hline 454 \end{array}$$

1 hundred + 3 hundreds = 4 hundreds

Write the 4 hundreds in the hundreds place.

365+89=454 One-Note check

Memorize

Addition Property of 0

The sum of 0 and any number is that number. For example,

$$7 + 0 = 7$$
$$0 + 7 = 7$$

We call zero the identity element of addition of real numbers.

Memorize

Commutative Property of Addition

Changing the **order** of two addends does not change their sum. For example,

$2 + 3 = 5$ and $3 + 2 = 5$

$a + b = b + a$ for any real numbers a and b.

Memorize

Associative Property of Addition

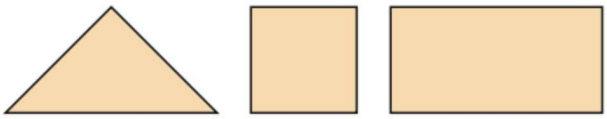
Changing the **grouping** of addends does not change their sum. For example,

$$3 + (5 + 7) = 3 + 12 = 15 \quad \text{and} \quad (3 + 5) + 7 = 8 + 7 = 15$$

$a + (b + c) = (a + b) + c$ for any real numbers a, b, c

Memorize

In geometry, addition is used to find the perimeter of a polygon. A **polygon** can be described as a flat figure formed by line segments connected at their ends. (For more review, see Appendix A.3.) Geometric figures such as triangles, squares, and rectangles are called polygons.



Triangle Square Rectangle

The **perimeter** of a polygon is the *distance around* the polygon. This means that the perimeter of a polygon is the sum of the lengths of its sides.

Memorize

Addition		
Key Words or Phrases	**Examples**	**Symbols**
added to	5 added to 7	$7 + 5$
plus	0 plus 78	$0 + 78$
increased by	12 increased by 6	$12 + 6$
more than	11 more than 25	$25 + 11$
total	the total of 8 and 1	$8 + 1$
sum	the sum of 4 and 133	$4 + 133$