## LIFFEPAC Math


MATHEMATICS 701
WHOLE NUMBERS
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Alpha Omega Publications*
804 N. 2nd Ave. E., Rock Rapids, IA 51246-1759
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## WHOLE NUMBERS

Whole numbers are numbers such as 6 , 15 , and 108. Whole numbers are not fractions, such as $\frac{1}{2}$ and $\frac{5}{8}$; and they are not mixed numbers, such as $1 \frac{1}{4}$ or $5 \frac{3}{8}$. Whole numbers are the numbers you use in counting when you say, "Zero, one, two, three, four, ..." and so on. Addition and subtraction of whole numbers are basic
skills that you should learn. These skills prepare you for learning about fractions and about multiplication and division later on. This LIFEPAC ${ }^{\circledR}$ will help you perfect your addition and subtraction skills and will show you some simple applications of those skills.

## OBJECTIVES

Read these objectives. The objectives tell you what you will be able to do when you have successfully completed this LIFEPAC.

When you have finished this LIFEPAC, you should be able to:

1. Identify place values of numbers.
2. Work with the order of numbers.
3. Round numbers to the nearest ten, hundred, and thousand.
4. Add one-, two-, and three-or-more-digit numbers.
5. Estimate sums.
6. Work with number sentences.
7. Subtract one-, two-, and three-or-more-digit numbers.
8. Estimate differences.
9. Identify number patterns and their rules.
10. Rename numbers.
11. Solve word problems.
12. Do simple exercises on a calculator.

Survey the LIFEPAC. Ask yourself some questions about this study. Write your questions here.

## I. NUMBER CONCEPTS

## OBJECTIVES

When you have completed this section, you should be able to:

1. Identify place values of numbers.
2. Work with the order of numbers.
3. Round numbers to the nearest ten, hundred, and thousand.

Number concepts that are important for understanding addition and subtraction are place value, number order, and rounding numbers. Place value involves powers of ten, and number order involves the concepts of greater than and less than. Rounding numbers is useful in estimating sums and differences.

## PLACE VALUE

The number 782 means 7 hundreds plus 8 tens plus 2 ones. Because hundreds, tens, and ones are powers of ten, we call our number system base 10. Each of the powers of ten is a place and has a place value equal to its power of ten.

## DEFINITIONS

Base 10: our number system, in which place values are powers of ten.
Place: the position of a number.
Place Value: the power of ten that names a particular place.

Place value is extended indefinitely to the left; however, we soon run out of names for the larger numbers. You should learn the names of the place values up to a hundred billion.


The number 782 may also be written as
$700+80+2$
or $7 \times 100+8 \times 10+2$.
This method of writing the number is called the expanded form of the number.

## DEFINITION

Expanded form of a number: a number written out showing the sum of each place value in the number.

Model 1: Write 5,260 in expanded form.
Referring to the place value chart, we have 5 thousands + 2 hundreds + 6 tens + no ones; or 5,000 + $200+60+$ 0 as the expanded form.
Model 2: Write 9,762,543 in expanded form.

$$
9,000,000+700,000+60,000+2,000+500+40+3
$$

The expanded forms of numbers are helpful in understanding addition and subtraction.

## 

$1.1 \quad 7,321$ $\qquad$
1.2

5,692
1.3

741
1.4

72,655
$\qquad$
$\qquad$
1.5

33
1.6 921,733
$1.7 \quad 1,380,010$
1.8

2,001
$1.9602,057$
1.10 430,006
1.11 Five thousands, two hundreds, three tens, and four ones $\qquad$
1.12 Ten thousand + four hundred + thirty + six $\qquad$
1.134 million +6 thousand +5 hundred $\qquad$
1.142 billion +80 million +3 hundred $\qquad$
1.151 billion + 1 million + 1 thousand +1 hundred $\qquad$

Write the number represented by each of the following expanded forms.
$8 \times 10,000+3 \times 1,000+4 \times 10$ $\qquad$
1.17
$4 \times 1,000+3 \times 100+2$
1.18
$5 \times 100,000+3 \times 100+2$ $\qquad$
$7 \times 1,000+4 \times 100+3 \times 10+5$ $\qquad$
$9 \times 10,000+8 \times 100+1$ $\qquad$

Write the number represented by each of the following phrases.
1.2112 tens $=10$ tens +2 tens $=1$ hundred +2 tens $\qquad$
1.2215 tens and 12 ones $\qquad$
1.2313 hundreds and 40 ones $\qquad$
1.2417 tens and 17 ones $\qquad$
1.25

15 hundreds and 8 tens $\qquad$

## NUMBER ORDER

On the number line, any number to the right of another number is the greater number. Any number to the left of another number is the lesser number.


## DEFINITIONS

$<$ less than; as in $1<2$.
$>$ greater than; as in $2>1$.

