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MATHEMATICS 701 WHOLE NUMBERS

CONTENTS

П.	NUMBER CONCEPTS	2
	Place Value	2
	Number Order	4
	Rounded Numbers	6
П.	ADDITION	10
	Addition Facts	10
	One- and Two-Digit Numbers	12
	Three-or-More-Digit Numbers	18
	Estimation	21
	Number Sentences	22
Ш.	SUBTRACTION	26
	Subtraction Facts	26
	One- and Two-Digit Numbers	28
	Three-or-More-Digit Numbers	31
	Estimation	32
IV		32
I V .	Number Patterne	25
	Renamed Numbers	27
		3/ 20
		53
		41
		43
	GLUSSARY	46

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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[®] 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: Identify place values of numbers. Work with the order of numbers. 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 x 100 + 8 x 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	7,321	
1.2	5,692	
1.3	741	
1.4	72,655	
1.5	33	
1.6	921,733	
1.7	1,380,010	
1.8	2,001	
1.9	602,057	
1.10	430,006	

Write the number represented by each of the following phrases. 1.11 Five thousands, two hundreds, three tens, and four ones 1.12 Ten thousand + four hundred + thirty + six 1.13 4 million + 6 thousand + 5 hundred 2 billion + 80 million + 3 hundred 1.14 1 billion + 1 million + 1 thousand + 1 hundred 1.15 Write the number represented by each of the following expanded forms. 1.16 8 x 10,000 + 3 x 1,000 + 4 x 10 1.17 $4 \times 1,000 + 3 \times 100 + 2$ 1.18 $5 \times 100,000 + 3 \times 100 + 2$ 1.19 7 x 1,000 + 4 x 100 + 3 x 10 + 5 1.20 9 x 10,000 + 8 x 100 + 1

Write the number represented by each of the following phrases.

- 1.21 12 tens = 10 tens + 2 tens = 1 hundred + 2 tens
- 1.22 15 tens and 12 ones
- 1.23 13 hundreds and 40 ones
- 1.24 17 tens and 17 ones
- 1.25 15 hundreds and 8 tens

----- 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.

	-	_																
		40	50	60	70	80	90	10	0 11	0 12	0 13	80 14	10 15	0 16	0 17	0		
60	is	less	thar	า 80	160 is greater than 140						12) is be	etweer	100	and	140		
		60 <	< 80			160 > 140							100 < 120 < 140					

DEFINITIONS

< less than; as in 1 < 2.

> greater than; as in 2 > 1.