LIFEPAC® Math

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MATHEMATICS 702
WHOLE NUMBERS:
MULTIPLICATION AND DIVISION

CONTENTS

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WHOLE NUMBERS: MULTIPLICATION AND DIVISION

Numbers are very much a part of our lives. In some uses, such as counting or dialing a telephone, we do not perform any mathematical operations in the use of the numbers; but in many uses, we do apply mathematics. How many jobs can you think of where mathematics is used? Here are a few: all clerks (whether hamburgers or luxury cars are sold); all engineers, especially; church officers, local and national; machinists; carpenters; bank employees; salesmen; and coaches.

Can you think of any job that wouldn't use mathematics? They are scarce. People have many uses for math in their everyday lives. Here are some ways mathematics is used: figuring pay due when working; keeping a checkbook; and figuring income tax returns.

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. Accurately multiply whole numbers.
2. Define the special multiplication terms.
3. Use multiplication in problem applications.
4. Accurately divide whole numbers.
5. Define the special division terms.
6. Use division in problem applications.

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

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I. MULTIPLICATION

OBJECTIVES

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

1. Accurately multiply whole numbers.
2. Define the special multiplication terms.
3. Use multiplication in problem applications.

What is multiplication anyway? Had you thought about it? Multiplication is a quick way to add a number many times. Adding three fives is almost as simple as multiplying 3 x 5 = 15, but adding 227 until you have added 45 of them would be quite a job. Do you see that multiplication is much quicker? As a matter of fact, finding short cuts is the purpose of nearly all mathematics.

Simple multiplications may be done on the number line. The number line shown illustrates 3 x 4 = 12.
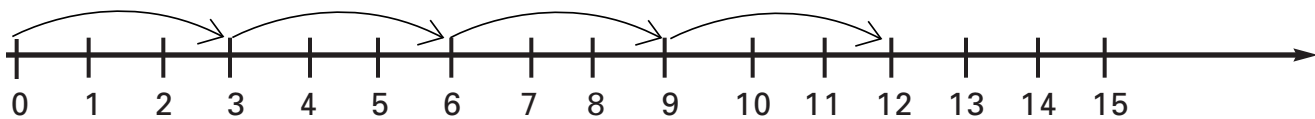
BASIC FACTS

Before you can use multiplication to save much time, you must know very well the basic facts of multiplication, as found in the multiplication table. They are easier to learn than most people think. You probably already know them.

Since any number multiplied by zero gives zero, no memorization is needed for that set of facts. Multiplying by one does not change a number, so that set is easy, too. (1 x 4 = 4, 1 x 7 = 7, 1 x N = N)

When you know the 2's table, then you already know one member of each other set. This fact is true because of the Commutative Principle, which states that the order of multiplication makes no difference. So 2 x 7 = 7 x 2 or A x B = B x A.

> ### COMMUTATIVE PRINCIPLE
>
> In multiplication, the same product is obtained even if the order of multiplication is changed.

In case you need review, Figure 1 is a table of the basic multiplication facts.

X	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9
2	0	2	4	6	8	10	12	14	16	18
3	0	3	6	9	12	15	18	21	24	27
4	0	4	8	12	16	20	24	28	32	36
5	0	5	10	15	20	25	30	35	40	45
6	0	6	12	18	24	30	36	42	48	54
7	0	7	14	21	28	35	42	49	56	63
8	0	8	16	24	32	40	48	56	64	72
9	0	9	18	27	36	45	54	63	72	81

Figure 1

To check how well you know the multiplication facts, work on the following chart. Time yourself to see how quickly you do it. (If a stop watch is available, use it.) Accuracy is more important than speed. Check your answers with the facts chart.

✳ ✳ ✳ **Complete this basic multiplication chart.**

1.1

X	3	0	2	6	4	9	7	1	8	5
1										
5										
3										
9										
8										
6										
2										
4										
7										
0										

Time: minutes _____

seconds _____

Number missed _____

You should have all of the answers correct, which is more important than speed. Average time is approximately two minutes; but if you did all of them correctly in four minutes or less, you will quickly make good progress in doing this LIFEPAC. If you missed a few, study them until you know them. If you were slow, you should put in some regular study until you can do them faster. Your teacher will help you. For extra practice, you may wish to construct your own multiplication chart to fill in.

Multiply.

1.2	6 x 3	_____	1.3	6 x 4	_____	1.4	6 x 6	_____
1.5	6 x 7	_____	1.6	6 x 8	_____	1.7	6 x 9	_____
1.8	7 x 3	_____	1.9	7 x 4	_____	1.10	7 x 6	_____
1.11	7 x 7	_____	1.12	7 x 8	_____	1.13	7 x 9	_____
1.14	8 x 7	_____	1.15	8 x 8	_____	1.16	8 x 9	_____
1.17	9 x 7	_____	1.18	9 x 8	_____	1.19	9 x 9	_____

PROCEDURES AND PRACTICE

Multiplication has its own special terms. The number to be multiplied is called the *multiplicand*. The number to multiply by is called the *multiplier*. The answer in multiplication is called the *product*.

DEFINITIONS

Multiplicand: The number to be multiplied.

Multiplier: The number to multiply by.

Product: The result or answer of multiplication.

Model: 3

   45   ← multiplicand
 x 7   ← multiplier
315   ← product

Multiply the ones' digit of the multiplicand first: 7 x 5 = 35. The 5 of the 35 represents ones, or units, and is written directly below the multiplier. The 3 of the 35 represents tens. It is used as a "carry number" and may be written above the tens number of the multiplicand.