

# Why should you consider Mastering Mathematics?

- ☑ It is **economical**. Since Mastering Mathematics covers **all math skills in 1st through 6th grade** (with some K and 7th included), it costs **less than \$20 per grade level**.
- ☑ It is **reproducible** for your immediate family. No need to buy additional workbooks or supplemental materials.
- ☑ There is **no parental preparation** - no videos or scripts to study, no presentations to master. Simple directions are right on the page for your 2nd-3rd grade reader to read to himself. This is a **self-directed** program for many students.
- ☑ Its balanced approach works with **all types of learning styles**. **Self-paced** success is built into Mastering Mathematics; busywork is eliminated.
- ☑ **Memorization is minimized**. Children memorize just a few facts at a time, not long lists. These are practiced with self-checking fact wheels, flash cards and games.
- ☑ It's **fun! Games** are used to reinforce/practice math facts and teach simple equivalents (i.e.: 1 foot = 12 inches, etc.). Drill work is fun, not boring!
- ☑ Page layouts are appealing. **Print is large** so there's more room to write answers. Work sheets contain **never more than 20 problems** - enough to master the skill but not overkill. Great for ADD/ADHD! And work sheets **face a blank page**, so the child focuses only on his task.
- ☑ Students **master one skill at a time**. No jumping around or moving to a new skill before he is ready. Pretests find "learning gaps" and provide **accurate placement**.
- ☑ **Review** is built in. Students learn addition first. After they have a beginning foundation in subtraction, they review addition by checking their subtraction. When they learn multiplication, they use it to check their division. Skills aren't lost; they become firm foundations for the next skill to be learned.
- ☑ Math class usually lasts about **20 minutes per day**. Work sheets are done 3 days per week (M, W, F for younger students). On the other 2 days, their fact group is practiced with a game and an additional skill is taught (like adding change, time, measurement, etc.). Additional skills are taught from a checklist. Go down the list, find the first skill your child doesn't know, and start there. You decide the order for teaching these skills - "time" before "money" or "money" before "thermometers". This **structured method** still gives you input and **flexibility**. The Parent's Manual tells you which pages should be completed in each grade. You aren't confused as to which skills must be covered.
- ☑ **Christian, practical and personalized word problems**. Students can even write their own on the blank page that faces all work sheets.

So if you want to enjoy your children and give them a "no fuss, no fluff, no frustration" math program, **Mastering Mathematics is for you!**

# MULTIPLICATION - TEST A - FACTS

**DIRECTIONS:** You have 5 minutes. No erasing. Do your best.

$0 \times 0 = \underline{\quad}$

$2 \times 1 = \underline{\quad}$

$3 \times 0 = \underline{\quad}$

$4 \times 1 = \underline{\quad}$

$5 \times 5 = \underline{\quad}$

$2 \times 4 = \underline{\quad}$

$1 \times 1 = \underline{\quad}$

$2 \times 3 = \underline{\quad}$

$0 \times 2 = \underline{\quad}$

$3 \times 2 = \underline{\quad}$

$1 \times 3 = \underline{\quad}$

$1 \times 0 = \underline{\quad}$

$3 \times 3 = \underline{\quad}$

$0 \times 3 = \underline{\quad}$

$1 \times 4 = \underline{\quad}$

$4 \times 5 = \underline{\quad}$

***New learners obviously begin at the beginning - on page 1.***

***But children who have math experience shouldn't be penalized by having to repeat what they have already learned. Pretest them on their facts (Test A) and skills (Test B). Then place them where they need to be, without wasting precious learning time.***

***Test A is a timed test showing you which facts are known and how quickly the student can recall them. This test is repeated orally to check if each fact can be recalled in 3 seconds or less. "Slower" facts need more work.***

$7 \times 0 = \underline{\quad}$

$3 \times 6 = \underline{\quad}$

$0 \times 6 = \underline{\quad}$

$7 \times 4 = \underline{\quad}$

$7 \times 2 = \underline{\quad}$

$6 \times 4 = \underline{\quad}$

$1 \times 6 = \underline{\quad}$

$0 \times 7 = \underline{\quad}$

$2 \times 6 = \underline{\quad}$

$5 \times 7 = \underline{\quad}$

$6 \times 3 = \underline{\quad}$

$2 \times 7 = \underline{\quad}$

$7 \times 7 = \underline{\quad}$

$3 \times 7 = \underline{\quad}$

$7 \times 1 = \underline{\quad}$

$5 \times 6 = \underline{\quad}$

$9 \times 6 = \underline{\quad}$

$7 \times 8 = \underline{\quad}$

$9 \times 4 = \underline{\quad}$

$0 \times 8 = \underline{\quad}$

$7 \times 9 = \underline{\quad}$

$8 \times 5 = \underline{\quad}$

$2 \times 9 = \underline{\quad}$

$5 \times 9 = \underline{\quad}$

$8 \times 0 = \underline{\quad}$

$9 \times 7 = \underline{\quad}$

$8 \times 3 = \underline{\quad}$

$3 \times 9 = \underline{\quad}$

$9 \times 8 = \underline{\quad}$

$2 \times 8 = \underline{\quad}$

$8 \times 6 = \underline{\quad}$

$9 \times 9 = \underline{\quad}$

$4 \times 8 = \underline{\quad}$

$9 \times 1 = \underline{\quad}$

$5 \times 8 = \underline{\quad}$

$1 \times 9 = \underline{\quad}$

$8 \times 8 = \underline{\quad}$

$8 \times 2 = \underline{\quad}$

$1 \times 8 = \underline{\quad}$

$9 \times 2 = \underline{\quad}$

$4 \times 9 = \underline{\quad}$

$6 \times 8 = \underline{\quad}$

$9 \times 0 = \underline{\quad}$

$3 \times 8 = \underline{\quad}$

$8 \times 9 = \underline{\quad}$

$8 \times 4 = \underline{\quad}$

$6 \times 9 = \underline{\quad}$

$8 \times 7 = \underline{\quad}$

$9 \times 3 = \underline{\quad}$

$0 \times 9 = \underline{\quad}$

$9 \times 5 = \underline{\quad}$

$8 \times 1 = \underline{\quad}$

## MULTIPLICATION - TEST B - SKILLS

A) 
$$\begin{array}{r} 3 \\ \times 2 \\ \hline \end{array}$$

B) 
$$\begin{array}{r} 432 \\ \times 2 \\ \hline \end{array}$$

C) 
$$\begin{array}{r} 543 \\ \times 4 \\ \hline \end{array}$$

D) 
$$\begin{array}{r} 503 \\ \times 5 \\ \hline \end{array}$$

***Children who are pretested also will be checked on their skills (Test B). This test is untimed so they may concentrate on showing what they know, not on how fast they can solve the problem.***

E) 
$$\begin{array}{r} \$26.45 \\ \times 6 \\ \hline \end{array}$$

F)  $6321 \times 7 = \underline{\hspace{2cm}}$

G) 
$$\begin{array}{r} 23 \\ \times 31 \\ \hline \end{array}$$

H) 
$$\begin{array}{r} 53 \\ \times 34 \\ \hline \end{array}$$

I) 
$$\begin{array}{r} \$4.26 \\ \times 35 \\ \hline \end{array}$$

J) 
$$\begin{array}{r} 537 \\ \times 326 \\ \hline \end{array}$$

## TEST A

DIRECTIONS: CIRCLE ERRORS. Enter student into first category where he/she misses (1) both the fact and its reverse, (2) a square (a number times itself), or (3) 3 errors in the same category. Circle the results (shape and page number).

<u>CIRCLE (PG. 1)</u>	<u>SQUARE (PG. 10)</u>	<u>TRIANGLE (PG. 16)</u>	<u>ARROW (PG. 22)</u>
0x0 -	0x4 4x0	0x5 5x0	0x6 6x0
0x1 1x0	1x4 4x1	1x5 5x1	1x6 6x1
0x2 2x0	2x4 4x2	2x5 5x2	2x6 6x2
0x3 3x0	3x4 4x3	3x5 5x3	3x6 6x3
1x1 -	4x4 -	4x5 5x4	4x6 6x4
1x2 2x1		5x5 -	5x6 6x5
2x2 -			6x6 -
1x3 3x1			
2x3 3x2			
3x3 -			
	<u>DIAMOND (PG. 30)</u>	<u>HEXAGON (PG. 38)</u>	<u>STAR (PG. 46)</u>
	0x7 7x0	0x8 8x0	0x9 9x0

***This testing procedure should be repeated at the beginning of every school year. If the child loses any ground over the summer, it will be picked up on the pretest. Then he will re-enter the program right where he needs to be. A quick review is usually all that needs to take place (using games, skipped pages from last year, and fact wheels).***

## MASTERING MULTIPLICATION

### TEST B

Note the letter beside the student's first error. Compare the suggested entry level page to the suggested page on TEST A. Have the student enter on the lower page number.

- |            |            |            |            |
|------------|------------|------------|------------|
| A) page 1  | B) page 7  | C) page 14 | D) page 18 |
| E) page 27 | F) page 35 | G) page 53 | H) page 54 |
|            | I) page 56 | J) page 64 |            |

STUDENT ENTERED ON PAGE \_\_\_\_\_

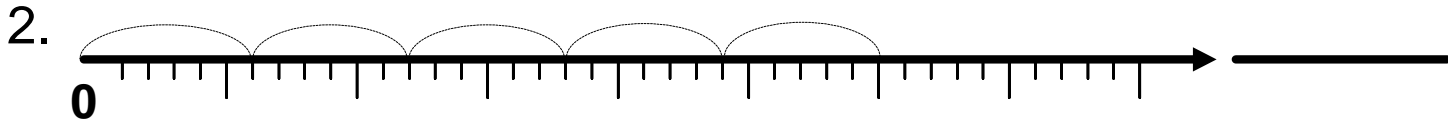
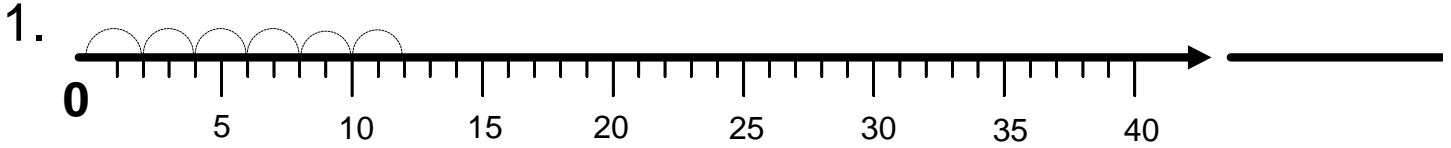
DATE \_\_\_\_\_



1

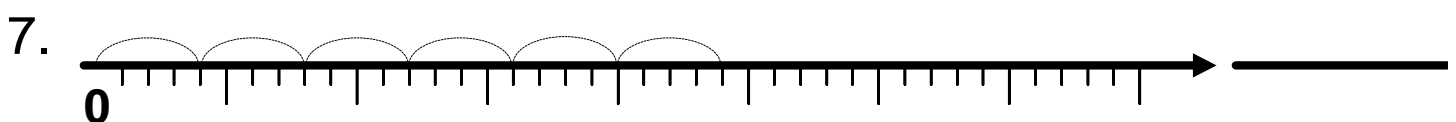
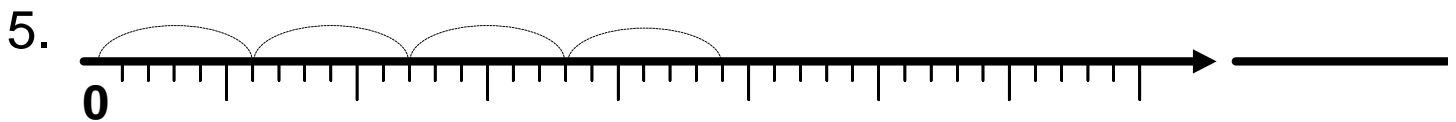
**Each work sheet unit is shape coded. These "arrow" work sheets go with arrow games and manipulatives.**

What facts do these number lines show? Write your number sentence on the line beside each number line. You may write in the numbers under the number lines if it will help you. Use the "groups of" explanation on pages 1 and 2 to help you get these right.



3. **The first page of a shape is a concept page. The student's new facts are shown as pictures, number lines, etc. Since this is multiplication, the "groups of" concept is emphasized.**

4. **Color pictures are eliminated so your child will not become distracted from his task. (This is math, not art.)**



Which facts are opposites? Write their number sentences on the lines below.

\_\_\_\_\_ and \_\_\_\_\_      \_\_\_\_\_ and \_\_\_\_\_

↑ 2

Can you get this page 100% correct in 4 minutes or less? It contains CIRCLE, SQUARE, TRIANGLE, and ARROW facts. A perfect score will show you have memorized 49 facts.

***The second page of a shape is a drill page. Many parents use it as a "fact wake-up", before attempting that day's work sheet or game. The student repeats this page every day he is in this shape, increasing his accuracy and fact recall speed. His results may be recorded on the facing blank page, so he can see his daily improvement.***

$$\begin{array}{r} 5 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 0 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 0 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 5 \\ \hline \end{array}$$

My score: \_\_\_\_\_

My time: \_\_\_\_\_

↑ **3**

Now you are ready to begin multiplying larger numbers. The number beside the times sign (x) is called the **multiplier**. The **multiplier** tells how many “groups of” the top number you have. It must multiply each numeral it comes to as it moves from right to left. Show me how well you can do these sample problems:

$$\begin{array}{r} 3 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} \leftarrow \\ 32 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} \leftarrow \\ 123 \\ \times 3 \\ \hline \end{array}$$

*The third page of a shape generally uses his new facts in previously learned skills.*

*In this case, a new skill is taught. Students who read on a high 2nd-3rd grade level may do this work independently. Have them read the directions themselves and solve the first (easiest) and last (hardest) problem on the page. If they get these two right, it may be assumed that they understood what they read and may proceed independently.*

*Younger children/poorer readers will need the directions read to them. Older siblings can do this for you.*

*All problems are in large print. This gives the child more room to write his answers.*

$$\begin{array}{r} 13 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 20 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 21 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 22 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 23 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 30 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 31 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 32 \\ \times 3 \\ \hline \end{array}$$

 **4**

$$\begin{array}{r} 20 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 22 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 23 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 21 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 30 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 21 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 22 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 31 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 321 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 123 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 320 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 121 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 213 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 203 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 302 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 201 \\ \times 2 \\ \hline \end{array}$$



↑ 5

*This page is a "fun page". It reviews the facts quickly and students enjoy being done with math on this "short day."*

**x 6**

	2
	6
	4
	1
	3
	5
	4
	3
	0
	1

**x 6**

5	
3	
6	
2	
0	
4	
6	
5	
1	
4	

↑ **6**

$$\begin{array}{r} 4 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 0 \\ \hline \end{array}$$

10

12

14

13

*This is another page of practice/reinforcement. There are never more than 20 problems per page, with each row of problems becoming progressively longer. Every skill and fact learned thus far is reviewed daily.*

$$\begin{array}{r} 23 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 24 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 32 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 30 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 304 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 233 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 120 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 211 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 323 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 212 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 122 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 301 \\ \times 3 \\ \hline \end{array}$$

↑ 7\*

$$\begin{array}{r} 14 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 21 \\ \times 3 \\ \hline \end{array}$$

*Any page with a star or asterisk is an optional reinforcement page. If your child is making 90% or better on previous work, he may skip this page. Then you will have a quick review page before testing or save it until next year.*

*If he needs additional work, he may complete all or part of this page. You may allow him to choose any 2 problems per row to solve. If he gets all of them right, he may skip the remainder of the page. But if he misses just one...*

$$\begin{array}{r} 402 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 314 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 432 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 202 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 124 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 223 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 130 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 102 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 322 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 312 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 210 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 300 \\ \times 3 \\ \hline \end{array}$$

 **8**

Problems that must be read aren't really very hard. All of the numbers you need to find your answer will be in these problems. You must remember to use dollar signs if the problem is talking about money. Otherwise, you just put the numbers into problem form and solve it.

Here is a sample problem: **John has 2 cats. Each cat had 3 kittens. How many kittens were born?**

It doesn't matter whether you use the 2 or the 3 as the top number in your problem. Your answer will be the same either way. Write your problem and show me the answer.

Here is a sample problem using money: **Mary needs 3 pencils. Each pencil costs \$.06. How much will the pencils cost?**

This time it does make a difference which number goes on the top. The top number always must be the

***Christian and realistic word problems are used for practical application. Personalized word problems are also included, allowing the student to use these math skills in his or her everyday life.***

***Blank pages across from each work sheet allow the student to work their word problems right in their book, correct the occasional error, or create more personal word problems.***

notebooks. Each notebook cost \$2.35. How much did all of the notebooks cost? \_\_\_\_\_

4. A mother came in and bought 6 pens. Each pen cost 65¢ . How much did the pens cost? \_\_\_\_\_

5. A teacher came in and bought 6 different colored marking pens. Each pen cost \$1.05. How much did the pens cost? \_\_\_\_\_

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**Mom is taking her Sunday School class on a trip.**

1. Bread costs \$1.03 a loaf. She needs 3 loaves. How much will the bread cost? \_\_\_\_\_

2. She needs 6 packages of lunch meat. Each package costs \$1.25. How much will the lunch meat cost? \_\_\_\_\_

3. She needs 3 six-packs of soft drinks. Each six-pack costs \$2.16. How much will the drinks cost? \_\_\_\_\_

4. She needs 2 bags of ice. Each bag costs 54¢. How much will the ice cost? \_\_\_\_\_

5. For dessert, Mom buys 6 lbs. of apples. Each pound costs \$.56. How much will she pay for apples? \_\_\_\_\_