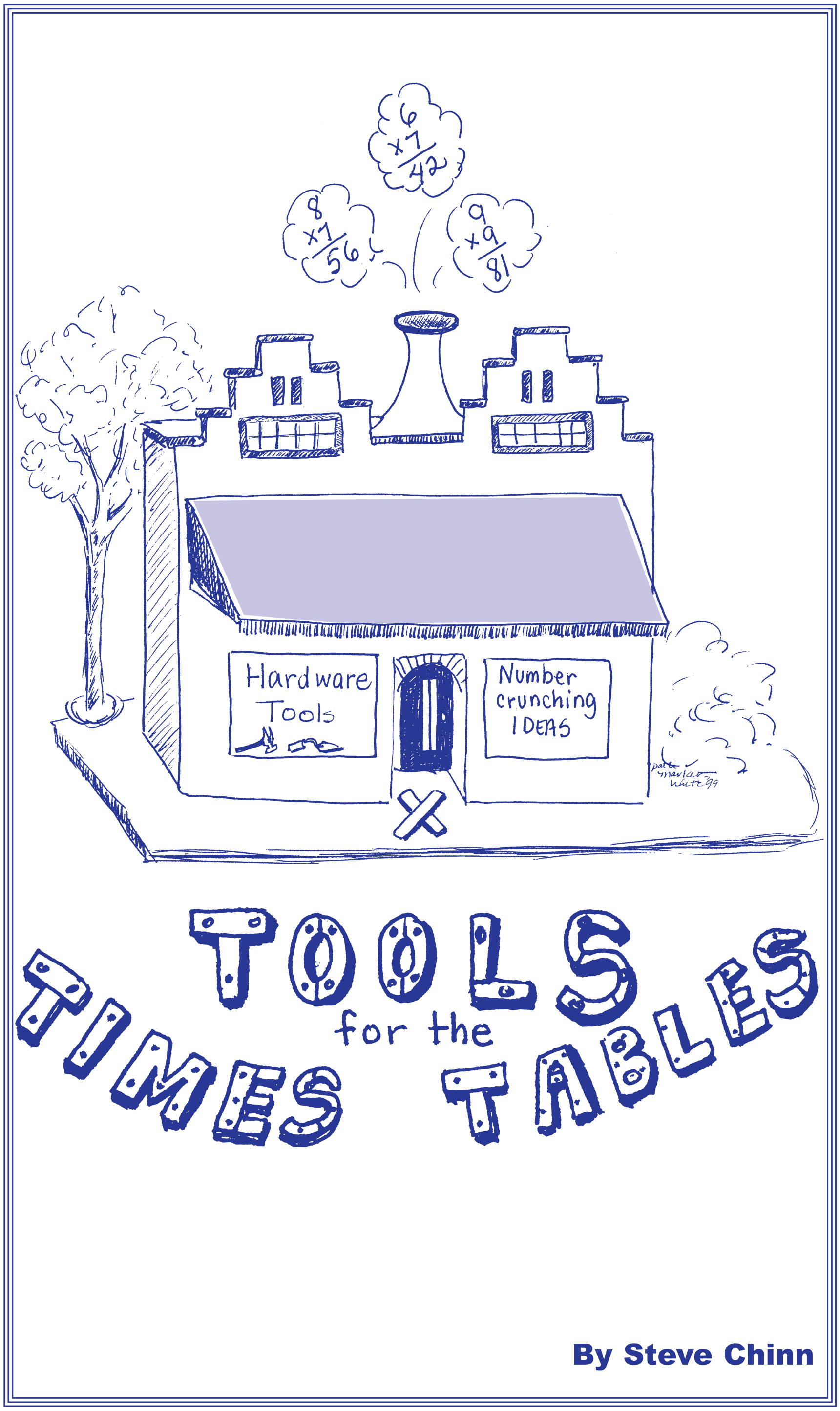


Workbook

A step-by-step guide to using TOOLS FOR THE TIMES TABLES in mastering the multiplication tables

By Sue Jones

Title: Tools for the Times Tables Workbook

Author: Susan Jones

First published in the United States November 1999
by Team Prairie LLC, Urbana, IL USA

Printing 3 4 5 6 7 8 9

Copyright © 2000 Susan Jones

All Rights Reserved

If your are the original purchaser of this volume, you may make as many copies of its pages for use by you and your students in your educational setting only. Such reproduction is the only exclusion permitted to the limitations given below.

No part of this publication may be reproduced or transmitted in any form or by any means, electronically or mechanically, including photocopying, recording or any information storage or retrieval system, without the express written permission of the author, Susan Jones.

Cover artwork by Patti Marker-White

Tools for the Times Tables Workbook

This volume, which is designed to accompany *Tools for the Times Tables* by Dr. Steve Chinn, was published by Team Prairie LLC of Urbana, IL.

Contributors include:

• **Sue Jones, M.Ed.,** who acted as an education consultant in editing the book. As Team Prairie's vice president for content, Sue oversees the online education center Resource Room (http://www.resourceroom.net/). She can be reached by e-mail at: sue@resourceroom.net

• **Pete Wetmore,** who was primary editor and designer of the book. The vice president of customer service for Team Prairie, Pete can be e-mailed at: pete@net-haven.net

• **Marge Wetmore,** who provided a parent's perspective in editing this workbook. President of Team Prairie, Marge is the proprietor of an online center for parents called Net Haven (http://www.net-haven.net/). To talk with Marge, check Net Haven's home page for a schedule of chats, or send her e-mail at: marge@net-haven.net

• **Erin J. Bullok,** who selected most of the graphics in this volume.

Table of contents

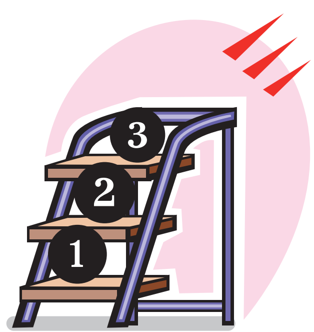
Learning the times tables

Dear Student,

This book is designed to help you master the times tables, especially if you have trouble memorizing things.

The ability to memorize facts does not determine how smart you are, or indicate just how well you will understand mathematics.

But to stay smart, you have to keep learning, and that includes memorizing some things.



If you have trouble memorizing things, you could keep trying to memorize everything and stay frustrated, or not try to memorize anything, which really limits how much you can learn.

It's much better to follow these three steps:

1. Figure out what's important for *you* to memorize.
2. Figure out the best ways for you to memorize those important things.
3. Work hard — memorize and master those important things.

The times tables should be on your list of important things to memorize.

Mastering the times tables will make understanding the rest of math easier, because it frees your mind to think about the math instead of trying to remember the times tables answer.

Once you have mastered the times tables, you will wonder how you got along without them!

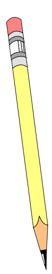
You can use this book on your own, but it might be easier and more fun to work with someone, someone who can encourage you when things are challenging, challenge you when things are easy, and share your progress as you learn.

"Talking through" these multiplication ideas is an important part of learning. That way, you turn ideas into words, and words into ideas.

If you don't have another person with whom you can talk through these ideas, talk to a pet,

a stuffed animal,

your guardian angel,



or even just your pencil

so that you're turning ideas into words and words into ideas. It might sound silly, but it works!

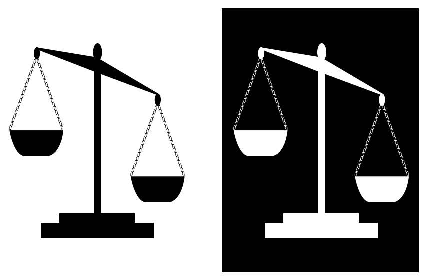
This book offers several ways to learn the times tables. It is designed to accompany Dr. Steve Chinn's book, *Tools for the Times Tables* (in the United Kingdom, the book is called *What to do when you can't learn the times tables*).

This book helps you do two things:

✓ Understand the concepts of multiplication.

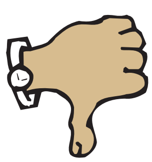
✓ Memorize the facts so you can quickly and automatically recall them.

This book has a good deal of review built in to it, so you may not need to do every exercise there is. But you should do at least one of each kind of exercise, to avoid having gaps in your understanding of the mathematical concepts.



You'll find several kinds of exercises for different times tables. If one kind of exercise works well for you, try it with other times tables, even if the book does not include that exercise at that point.

For example, if putting cards with pictures of the times table on a number line helps you understand the 2-times table, do the same thing for the 5-times table and the 4-times table.



On the other hand, if one kind of exercise isn't helpful, do something else!

Think and talk about the kinds of things that work best, because memorizing things comes up a lot in school and life, not just in math. Figuring out how you learn to remember things can save a lot of frustration.

How to use this book

Here are tips on learning the times tables:

Practice makes permanent, so practice the right answers.

Did somebody tell you that practice made perfect? That's only if you're practicing the right thing. Each time you guess an answer and you're wrong, you're practicing the wrong answer.

If you're not sure what the answer is, find out, *then* practice. Getting the right answer from a calculator or a times table grid is better than guessing.

Have a chart handy with the right answers, or figure them out from the ones you know (there are *lots* of ways to do that in this book and also in *Tools for the Times Tables*).

This will help you get the right answer while you're on your way to mastering the tables, and help you understand math concepts, too.

Learn ways to figure out the answer until you can remember the answer quickly.

Eventually, you want to have these answers at the tip of your tongue and the end of your fingertips, automatically and easily.

Work on your times tables a bit every day, starting with a review.

Even if you aren't going to work on new times tables, spend a few minutes going over the ones you know anyway. This practice pays off because recalling those facts becomes second nature.

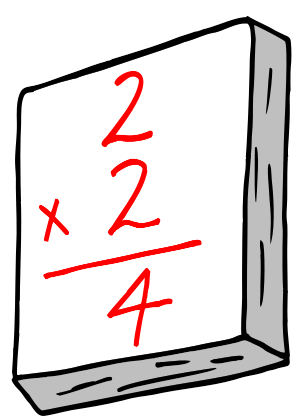
Learn just a few times tables facts at a time. You want to remember them for the rest of your life, so even if it takes you a year to learn the times tables well, you'll have the rest of your life to use them.

You could look at all of them every day for five years and not learn them, or learn two each week and know them all in less than a year, and know them for the rest of your life.

You'll also spend a lot more time getting them right along the way — which is much less frustrating!

Learn the times tables — don't be satisfied with just being able to figure them out.

You'll need to know the times tables for the rest of your life — in school, at work and around the house. You'll need to know the times tables in order to figure something out.



The more you have to think about the times tables, the more time it will take and the more likely you'll make a mistake — which is why it makes sense to learn them right, and learn them well.

Don't think that you know the times tables if you usually get it right and it takes a while. You want to have these answers at the tip of your tongue or the end of your fingertips, so you can give them automatically and easily.

Learn the times tables in a sensible order.

You can learn them in numerical order (0, 1, 2, 3, 4, 5) or you can learn them from "easiest to hardest," which is how *Tools for the Times Tables* presents them.

Work to make a plan that fits how you learn, then take the time to master the times tables as you go.

Review the ones you know.

If you already know some of the tables, practice them before you start tackling the ones you don't know yet. It's a good confidence booster and besides, practice makes permanent!

If you have to go back and practice them more to get fast again, do it. Lots of people need review — don't let it frustrate you!

Think about the math while you're learning the times tables.

There's more to learning the times tables than passing a test. To use them, you have to be able to see them in everyday life.

Know what the times tables mean. What would they look like if they were rows of desks in a classroom?

When you've learned the times tables, you'll be able to see packages with the same price tag and then do multiplication in your head — 3 packages of crackers at $3 apiece is $9.

Practice the times tables with the tools that work for you.

Flashcards —plain or fancy — may be a good tool for you to use in practicing the times tables. Maybe a number line is a good way for you to go.

There are also number charts, and memory tricks, and a game. After you read about these tools, talk with your teacher about one or more that could work for you.

Flashcards

Flashcards are the old, standard way to learn the times tables, by drill. This may work for you, especially if you follow the guidelines and tackle a few at a time.

Here's a sample, showing the front:

8 x 3

The back of the card shows the question and gives the answer:

8 x 3 = 24

You can make your flashcards with a hint on the bottom of the back, written upside down so you can fold that part up to see the hint:

8 x 3 = 24

Your hint is upside down on the back

8 x 3

And right side up when you fold the card

After you've practiced using the hint to learn the answer, unfold the card, put it back in the deck and practice without the hint until you don't need it any more.

Your hint can be a memory trick (several are described in the next few pages), or any hint that will work for you.

Start with a small deck and add only a few cards at a time. There are 10 cards for each times tables. You could pick 4 of the 2-times table cards, work on them for a while, then add 3 more. After working on those 7, add the last 3.

As the deck gets bigger, you'll want to sort them into three piles as you go over them:

❶ Use one stack for the cards you missed (hopefully this will be a *small* stack).

❷ Use a second stack for the ones you knew right away (congratulations ahead of time!).

❸ The third stack is for the cards you answered with difficulty — you had to think before you could give the answer. These are the ones you need to work on just as much as the ones you missed — and after more practice, you'll end up with just one stack, the one for all the cards you knew right away!

When should you use your flashcards? Just about any time it's convenient. If you're doing other work, you can grab the deck with the cards you know and practice it in less than a minute.

Or, you can practice your slow-going deck once or twice to get it faster.

Number lines

Start with a number line long enough to handle the times tables you're learning. We're going to use the 1-times table as an example, so our number line needs to be from 1 to 10:

1 2 3 4 5 6 7 8 9 10

Take a small card with each times table question without the answer on it and place it over the answer on the number line. The card needs to be small enough so it doesn't cover up too much of the number line.

1 2 3 4 [1 x 5] 6 7 8 9 10

The first time, you might need to count to get the cards in the right place; practice until you can do it quickly.

Make sure you've got the right answer by checking the times tables practice chart. Say the times table question and the answer, even trace it with your fingers, as you quickly put the card in its place.

See if you notice any patterns as you do this.

Next, take half of the cards, shuffle them, and do the same thing. Do this until you don't have to check your answers.

Finally, take away the number line and do the same thing. You might want to do them in order first.

Remember, if you learn just five of these times tables questions in two weeks, but learn them well, you'll have learned them all by the end of the year. So, take your time!

When you're done with the first half, add the next one or two biggest tables and go through the same process.

It's more important to do a few at a time than to rush through as many as you can at once. It's a good idea to get to know a small number of tables so that you know them fast and easy.

Then take a break — go do something different. Then, when you come back, see if they are still fast and easy. If they're not, practice the hard ones with the number line, and maybe learn smaller groups of them.

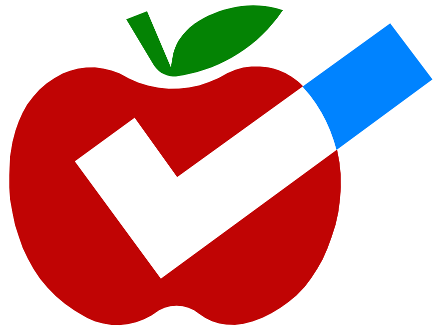
Number charts

Instead of a number line, you can use a chart of the numbers from 1 to 100. It will take up less space — but your cards with the times table questions on them will have to be small enough to fit.

1	2	3	4	**1 x 5**	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Visual memory tricks

Draw a picture to go with a times table question that gives you trouble.



You can draw a real example of the times table — for example, a dozen eggs in a carton can stand for 6 x 2 = 12, or a checkerboard can stand for 8 x 8 = 64.

You could draw two football players wearing jersey No. 7 for the 49ers to show that 7 x 7 = 49.

Have one version of this drawing that has the times table question and the answer on it. Trace the numbers and say the question and answer as you look at the picture.

Then just look at the picture and try to remember the times table that goes with it. And finally, look at just the times table, and remember the picture and the answer that goes with it.

If you're using flashcards, your hint can be the picture without the answer.

Auditory memory tricks

Some of the times tables rhyme: *6 times 8 is 48*.

Or, you can make up your own: *It's great to be completely sure, 8 times 3 is 24.*

Great and *8*, *be* and *3*, and *sure* and *four* all rhyme.

Need a hint for your flashcard? Use the first part of the rhyme:

It's great to be completely sure

Story memory tricks

Make up a sentence with the times table numbers in it, and a picture to go with it.

For instance, take: “Dinner for 6 at 7 on 42nd Street.”

You can act out calling in this reservation to the restaurant. Try it in different voices, draw different pictures — what does 42nd Street look like, anyway?

Have fun with it!

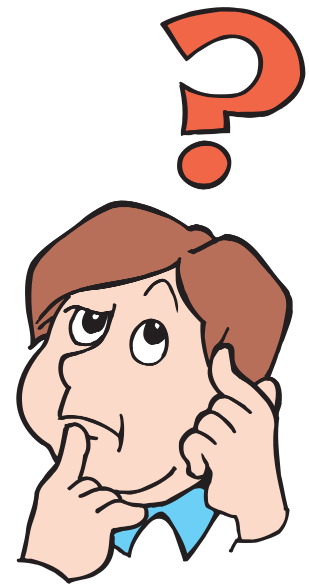
Fill-in-the-chart game

Cover each space on the times tables practice chart with a bingo chip or piece of paper or cardboard. Use either 10-sided dice (12-sided, if you’re learning the tables to 12), or shuffle your flashcard decks. If you use your flashcard decks, you can focus on certain times tables and leave the rest uncovered.

Roll the dice or draw a card, and see how quickly you can call out the right answer to the times table that goes with it. Check under the cover to make sure you’re right.

Don’t play this game until you know the tables pretty well, since you don’t want to be making wrong guesses. Or, you can give yourself 20 points for getting the answer right in 3 seconds or less, 5 points if you could figure it out in some other time period, and 3 points if you looked and then said the times table and the answer 3 times, and returned that card to the deck.

Repeat yourself; compete with yourself



Make quizzes with just a few of the times tables that you know, but not quickly. Put 25 questions on the quiz — but repeat the same 4 or 5 times tables throughout the quiz. If you don't look back unless you have to, you'll find yourself getting faster and faster. You might even have a times tables grid handy, which you'll want to look at the first time to make sure your answer is right.

If there are a few times tables that give you trouble, put those on a quiz over and over again, even if the other tables only show up once. Or make lots of flashcards with the same times table. Put the answer on the first one, and only look back if you have to . . . but do look back if you have to. If you had to look back, cover up the answer, then trace the problem and say the table with the answer.

Compete with yourself for accuracy and speed. You've mastered the times tables when it's only your speed in writing or speaking that slows you down.

Your goal is to master the times tables, so don't be satisfied with understanding how to figure out the answer. If you have difficulty with one of the tables, keep going back to it.

Try some of the different ways to understand it better or memorize it more easily. If you get it right most of the time, and it takes a little while, you haven't mastered it yet.

You'll be learning a lot of other things in math, and you need to be able to count on your math facts as part of a solid foundation for learning more math.

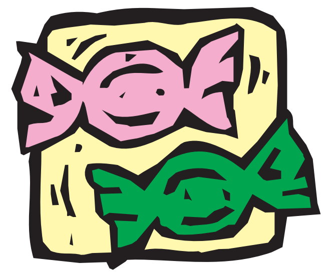
You may find that as you master these facts, you'll discover patterns and connections that you hadn't seen before, and deepen your understanding of math concepts as you go.

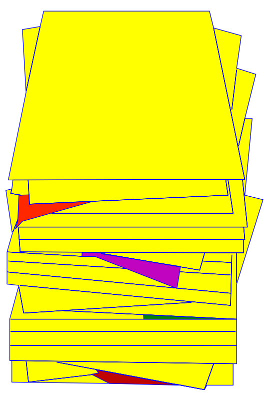
Is it hard for you to learn things to the point that you can automatically recall them without thinking of the answer? If so, then it's all that much more important to recall these facts as effortlessly as possible, because so many other math skills rely on them.

Good materials to use

Many people learn best when they can see and handle objects that demonstrate concepts.

You can use just about anything — and it will help to use different things — to emphasize the concept of the numbers. Peanuts, M&Ms, hard candy or another snack that has many similar pieces can be a teaching aid that you can eat after the lesson as a reward for working hard!





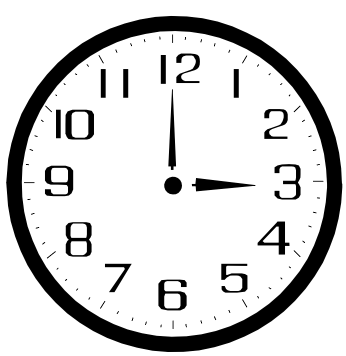
Index cards are easy to see and manipulate, especially if you get brightly colored ones, and you can use them later for fraction concepts, too.

Use your imagination!

Coins are good to use as a bridge. While it is something you can hold and handle, a coin also is abstract because a nickel "stands for" 5 times as much as a penny, even though there are not 5 objects.

Understanding this symbolism is a step closer to understanding that the squiggle "5" stands for 5 times as much as the squiggle "1."

The idea is to move from the concrete to the abstract. Number lines are also useful for seeing number patterns and relationships. A number line showing number 1-100 will include all the answers to the times tables.

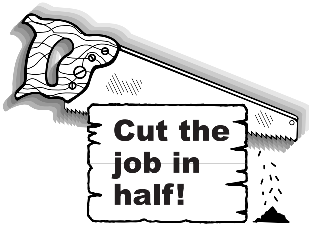


Take your time. Master the times tables.

If you take a year to learn these things right, you will know them for as long as you want to use them.

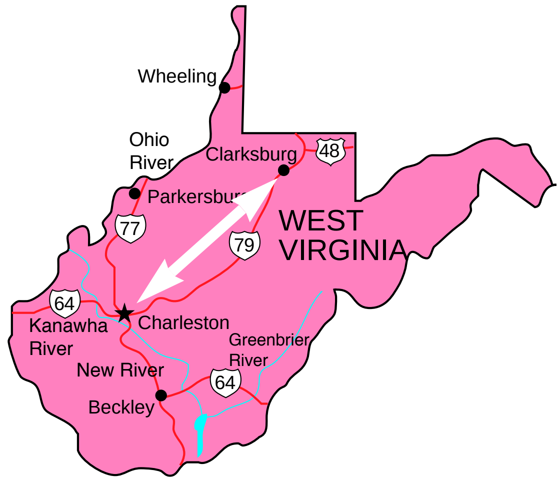
If you rush through them, you'll sort of know some of them . . . and later on, you'll wish you'd taken the time to do it right.

— *Susan Jones, M.Ed.*



Chapter One

The commutative property



Commuting is going back and forth the same distance every time.

Commutative means "it's like commuting." You can go one way, and then go the other, and the distance is the same.

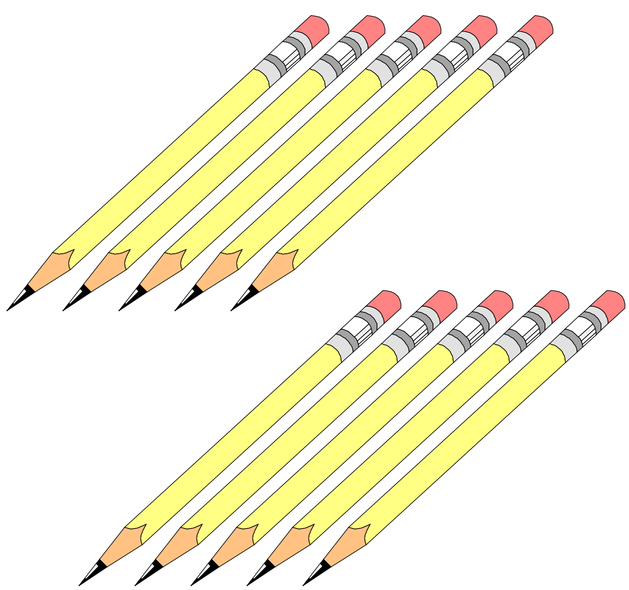
If you go from Clarksburg to Charleston, the distance is the same as going from Charleston to Clarksburg.

Why is this important? Because:

In addition and multiplication, the answer is the same no matter which number comes first.

5 x 2 is the same as 2 x 5. And 6 x 3 = 3 x 6.

So, if you know that 6 x 3 is 18, you also know the answer to 3 x 6. It's 18, too.

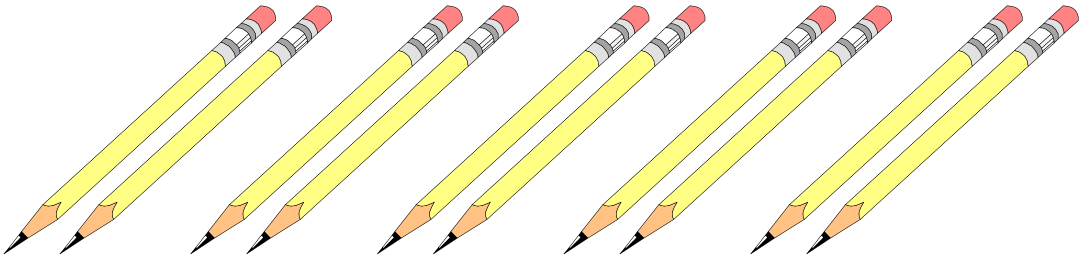


I put 5 pencils here, 2 times.

That's 5 x 2.

How many pencils are there?

ANSWER BOX



I put 2 pencils down, 5 times. That's 2 x 5.

How many pencils are there?

ANSWER BOX

Let's use just words to talk about the commutative property.

If I give you 5 ten-dollar bills, you'd have 5 x 10 dollars.

I could also give you 10 five-dollar bills. Then you'd have 10 x 5 dollars.

10 x 5 is the same as 5 x 10. How much is it?

ANSWER BOX

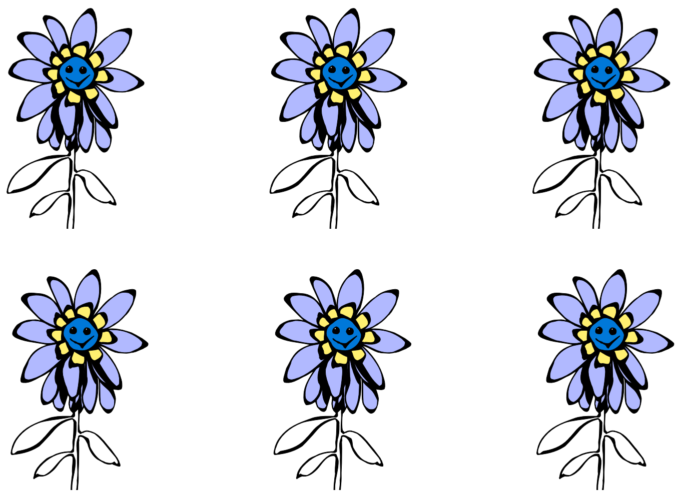
If I wanted to bring you 8 books,

I could bring you 2 of them at a time, and take 4 trips,

or, I could bring you 4 of them at a time, and take 2 trips.

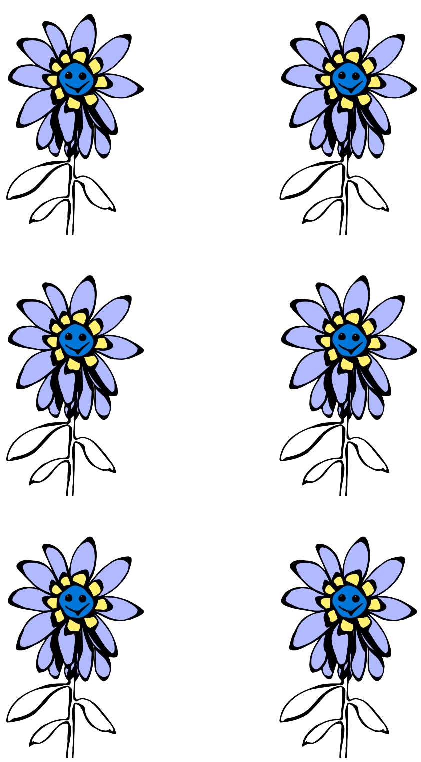
4 times 2 is the same as what other times table?

ANSWER BOX



I put 3 flowers down, 2 times. That's 3 x 2. How many flowers are there?

ANSWER BOX



I put 2 flowers down, 3 times — how would you write that as a multiplication fact?

___ **X** ___

ANSWER BOX

ANSWER BOX

How many flowers are there?

Use these two boxes to show the commutative property with pictures or words, and then numbers.

ANSWER BOX

ANSWER BOX

Explain the *commutative property* to your teacher. This might be hard at first, but stick to it — it will really help!!

X Chapter Two

What is multiplication?

To answer that question, we'll use some objects — things you can touch and handle. Pennies are a good choice, so get 8 pennies to work with.

Put 4 pennies in a row on the line below:

How many lines of pennies do you have there? 1, right?

1 times 4 is what you have just done . . . and how many pennies are there?

ANSWER BOX

Now, take your line of 4 pennies and put it on the line below. Then, put 4 more pennies on the line below that line.

Now that you have done that 2 times, you have 2 groups of 4, or 2 x 4.

How many pennies are there?

ANSWER BOX

You have 2 rows of 4 pennies in each row, or 2 x 4 . . . but if you turned the book and looked at the pennies from the side, you'd see 4 rows of 2 pennies in each row, or 4 x 2.

You could turn the book yourself, but we'll show you here what we mean:

Pictured above are 2 rows of 4 pennies each, which in the language of Math is 2 x 4.

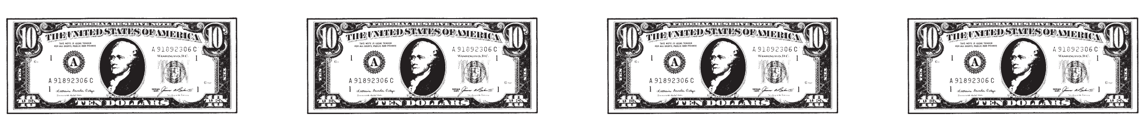
To the right are 4 rows of 2 pennies each, which in the language of Math is 4 x 2.

Math is really a code for writing down ideas about numbers.

Just as "The sky is blue" is a statement in the English language, "4 x 2 = 8" is a statement in the language of Math.

Equals or = is another way of saying *is* or *is the same as*. So, 4 x 2 = 8 is a short way to write, "if I get 4 of something 2 times, I'll have 8 of those things."

Of is another word that means times. Take $10 bills. If I have 4 *of* these $10 bills, then I have 4 *times* $10.



If a package has 8 batteries, and you buy 2 of those packages, you have 8 batteries times 2 packages.

In Math, you would have 8 batteries x 2 packages, which is 16 batteries.

And, since *is* is another way to say =, you can write that as 8 x 2 = 16.

When we use words, we speak or write in *sentences*.

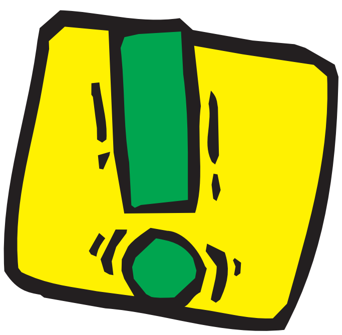
When we use numbers, we speak or write in *equations*.

Here are examples of math equations:

4 x 2 = 8 2 x 8 = 16 3 x 4 = 12 1 x 2 = 2 5 x 3 = 15

And, because of the commutative property of multiplication, we can write these same equations this way:

2 x 4 = 8 8 x 2 = 16 4 x 3 = 12 2 x 1 = 2 3 x 5 = 15



You can turn a sentence into an equation!

Try it, using these sentences:

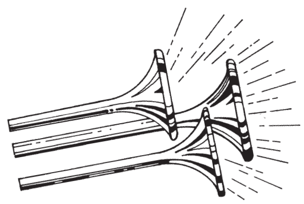
A jug of water weighs 8 pounds. Jan carried 3 of the 8-pound jugs in her backpack. How many pounds of water did she carry?

Here's a place to write the equation:

______ **x** ______ **=** ______

What is a word that means *equals*? ______________________

What is a word that means *times*? ______________________



Show what you know!

Make up some equations with your pennies.

Remember how you put them out in 2 rows of 4? You can use a different number of rows, and a different number of lines, to create new problems.

After you lay out your pennies, write down the problem in numbers. First, write an addition problem, then a multiplication problem, and then the answer. Here are two examples done for you:

$$\underline{4} + \underline{4} = \underline{8}$$
$$\underline{2} \times \underline{4} = \underline{8}$$

$$\underline{4} + \underline{4} + \underline{4} = \underline{12}$$
$$\underline{3} \times \underline{4} = \underline{12}$$

Here are some blank spaces where you can write your own problems:

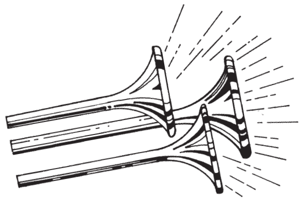
______________ = ____
____ x ____ = ____

______________ = ____
____ x ____ = ____

______________ = ____
____ x ____ = ____

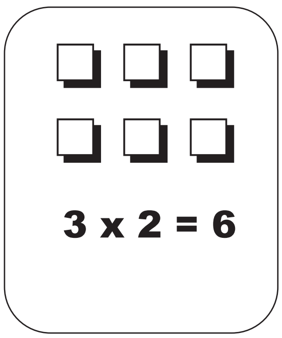
______________ = ____
____ x ____ = ____

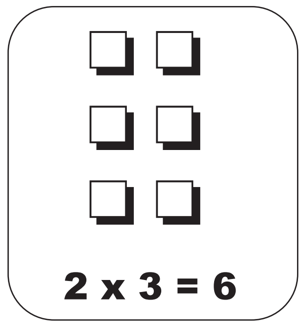
Once you've made the problems, work in reverse: Start with the numbers and use your pennies to show what each problem means.



Show what you know!

Can you explain what each symbol in these two examples means?





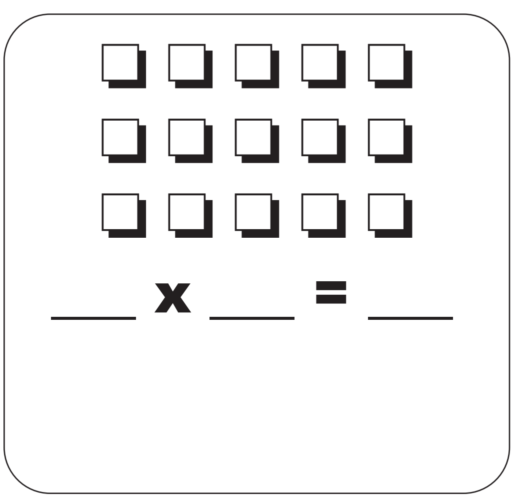
What part of the picture is the 3 talking about? Circle it.

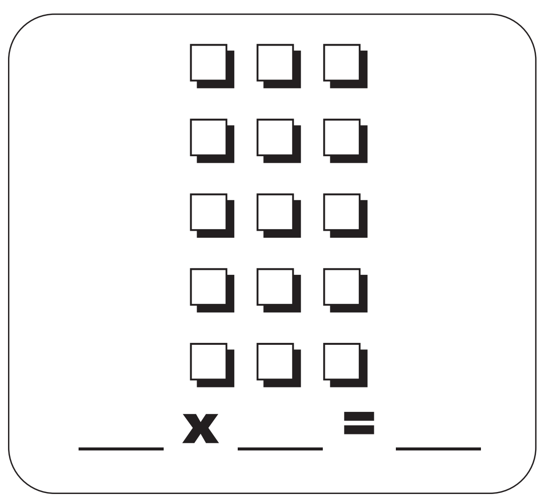
What is the 2 talking about? Put a box around it.

Which symbol stands for *times*? ______________

What is the symbol for *equals*? ______________

Make up your own pairs of problems that show the commutative property — that you can put the numbers in a multiplication problem in any order and get the same answer either way. Here's one to get you started:





____ x ____ = ____

____ x ____ = ____

____ x ____ = ____

____ x ____ = ____

____ x ____ = ____

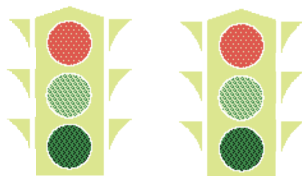
____ x ____ = ____

____ x ____ = ____

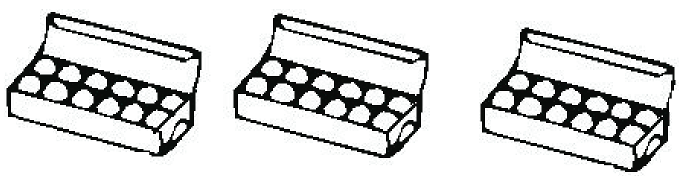
____ x ____ = ____

Here are pictures of familiar things that you can use to make your own equations. There's a space to write an equation under each picture, but you may find that you can write more than one equation for each picture!

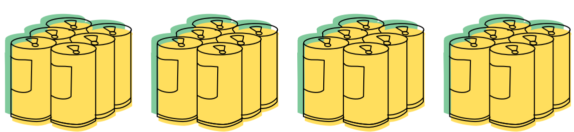
The number in the black circle next to each equation is there to identify each one for your teacher.



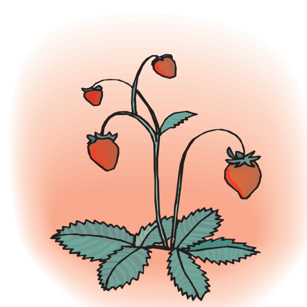
1 ____ x ____ = ____



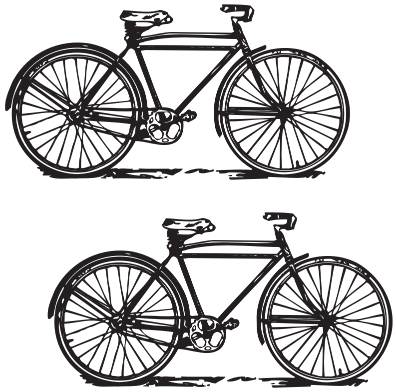
2 ____ x ____ = ____



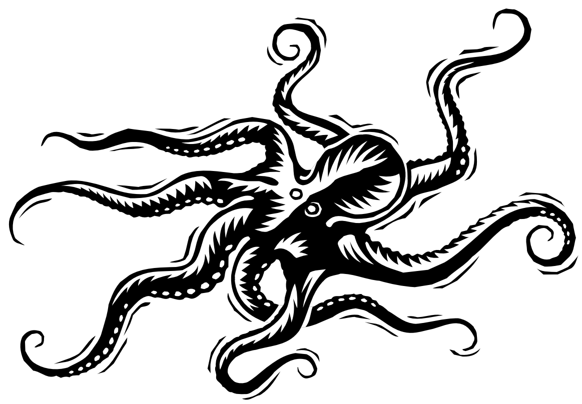
3 ____ x ____ = ____



4 ____ x ____ = ____



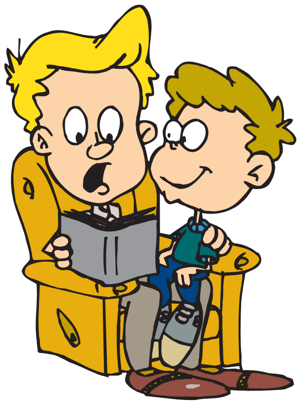
5 ____ x ____ = ____



6 ____ x ____ = ____

7 ____ x ____ = ____

8 ____ x ____ = ____



Now, make up a story to go with 2 of the pictures.

In your story, use the numbers in the equation to talk about what's in the picture. (You don't have to write it down. You can just tell it to your teacher.)

Let's combine math and drawing: Think of familiar things, stuff you'd find around the house, sights you'd see on the way to school or out shopping, or things you watch on television, and make up two equations about them.

Here are boxes in which to draw your pictures, with spaces where you can write your equations:

____ x ____ = ____

____ x ____ = ____

Here are 2 stories. Make up a picture to go with each one of them, and then write an equation about the story:

There are 4 shelves for cups.   I put 5 cups on each of the shelves.

How many cups are up on the shelves?

____ **x** ____ **=** ____

There are 3 vases for flowers. I put 1 flower in each vase.

How many flowers did I put in the vases?

____ **x** ____ **=** ____

Make up a story and a picture to go with each of these math statements:

6 x 2

3 x 2

Chapter Three

The 0-times tables.

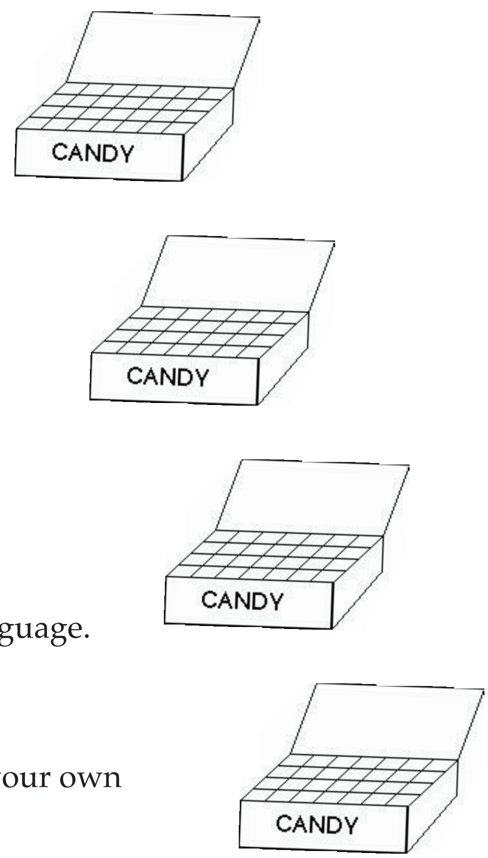
If you think about doing something,

but you don't ever do it,

it doesn't get done, right?

That is what the 0-times table is all about.

Whenever you multiply by 0, you get nothing!



If you have 4 candy boxes with no candy in them, how much candy do you have?

You don't have any candy.

You have 0.

Here's another way to look at it:

You have four candy boxes

— which is 4 in math language —

times — which is x in math language

— no candy in them, which is 0 in math language.

$$\underline{4 \times 0 = 0}$$

Using the pictures, can you explain this in your own words?

Instead of talking about the number 0, get your pennies again.

Put none of your pennies in the space below.

ANSWER BOX

Do that 5 times.

How many pennies have you put there?

ANSWER BOX

How would you write what you've just done as an equation?

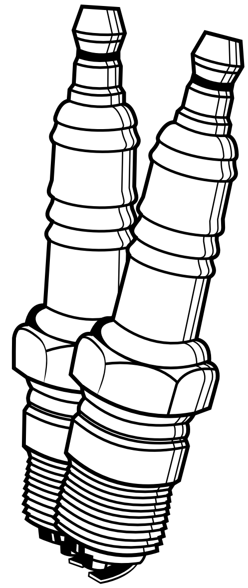
___ x ___ = ___

If you can buy a box of spark plugs,

and each box has 2 spark plugs in it,

but you have 0 of those boxes,

how many spark plugs do you have?

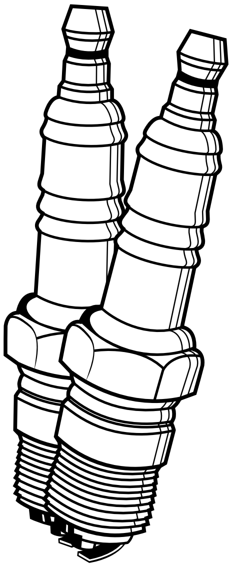


ANSWER BOX

What is the equation for what you've just read?

___ x ___ = ___

Now, read the story about spark plugs again, and draw your own picture.



Write your equation about the spark plugs one more time here.

___ x ___ = ___

Now, look at the picture again, and make up your own story using your equation.

You can change things as long as the numbers you use — the numbers in the equation — stay the same.

If you'd like to write your story before telling it to your teacher, use this space:

Draw a picture to go with each of these stories, and write the equation that each story talks about.

If I have 10 apple trees, and each has 0 apples on it, how many apples do I have?

___ x ___ = ___

Six empty cars are in the parking lot. How many people are in the cars in the parking lot?

___ x ___ = ___

3 kids are on a playground.

None of them brought a ball to play with.

How many balls are there on the playground?

___ x ___ = ___

Your turn! On this page and the next one, make up 2 pictures and 2 stories to go with the 0-times table. Fill in the equation that goes with each.

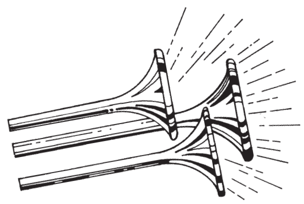
___ x ___ = ___

___ x ___ = ___

Here's a challenge for you:

Can you think of a story or picture to go with 0 x 0?

0 x 0 = ___



Show what you know!

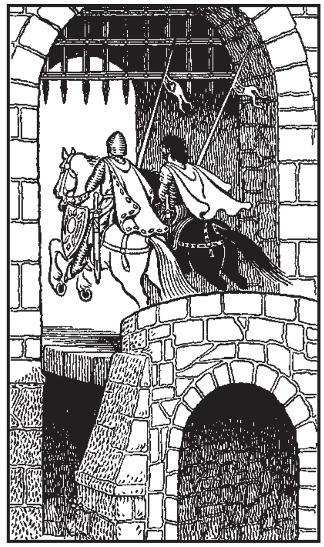
Answer 10 equations with 0 in them in less than a minute. Here they are:

8 x 0 = ______	1 x 0 = ______	0 x 0 = ______	9 x 0 = ______
4 x 0 = ______	24 x 0 = ______	897 x 0 = ______	5 x 0 = ______
7 x 0 = ______	2 x 0 = ______	10 x 0 = ______	3 x 0 = ______
6 x 0 = ______	n x 0 = ______	skunks x 0 = ____________	

Come up with a story problem for 0s. You can say it or write it, then draw it.

___ x 0 = ___

Gateway to Algebra



Mathematicians are always looking for a way to say a complicated idea without a lot of writing. (One math teacher said it was because "mathematicians are lazy," but after you learn the times tables, you can make up your own mind about that!)

You're learning to say, "Whatever number you multiply by 0, you'll always get 0."

Using math language, a mathematician would say, "$a \times 0 = 0$."

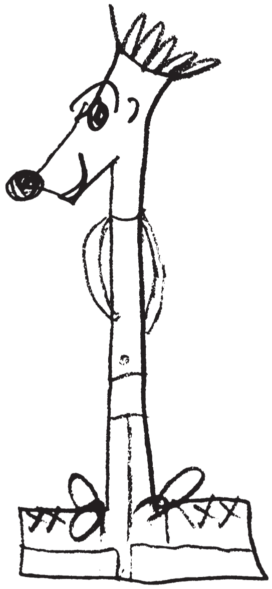
The "a" stands for whatever numbers could make that a true statement. Since any number multiplied by 0 equals 0, any number you put in place of "a" would make a true statement.

A mathematician wouldn't write "$a \times 0 = 8$" because there aren't any numbers that you could multiply by 0 and get 8. It would be telling a boldfaced lie!

A mathematician would write:

$$\underline{a \times 0 \neq 8}$$

The symbol "≠" means "does not equal."



Chapter Four

The 1-times table

1 is a special number.

The 1-times table follows a pattern almost as simple as the 0-times table pattern:

If you did something once, that's what you have.

If you have 1 of something, then that's exactly what you have — 1, no more and no less.

If I write a poem 1 time, I have 1 poem. No more, and no less.

That poem is exactly — and only — what I have.

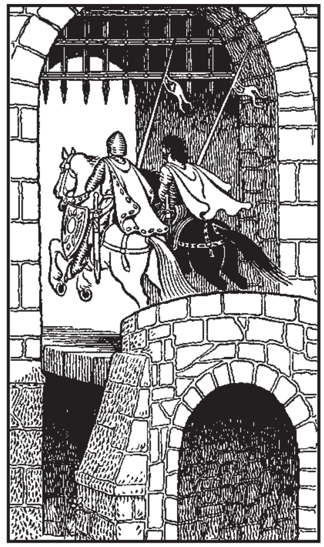
1 times a number is always that same number.

Here are some examples:

1 x 1 = 1   **5 x 1 = 5**

6 x 1 = 6   **7 x 1 = 7**

GATEWAY TO ALGEBRA



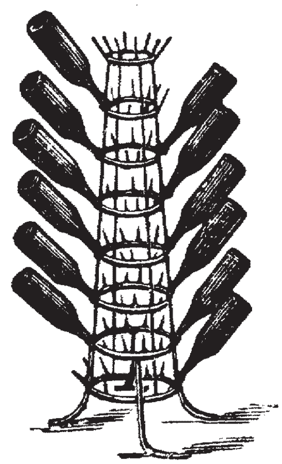
Ponder this:

If a x 0 = 0, what does a x 1 equal?

Take your time.

a x 1 = ______

If you have 1 rack of oil with 12 bottles of oil on it, how many bottles do you have?



This is 12 x 1.

How many bottles are there? 12.

Any number times 1 is that same number.

For each of these pictures, write a 1-times equation to go with it:

❶ ____ x ____ = ____

A

❷ ____ x ____ = ____

❸ ____ x ____ = ____

❹ ____ x ____ = ____

If there is 1 row of 3 chairs, how many chairs are there?

Draw it and write the numbers.

___ x ___ = ___

If I have 1 shelf with 3 cups on it, how many cups do I have?

Draw it and write the equation.

___ x ___ = ___

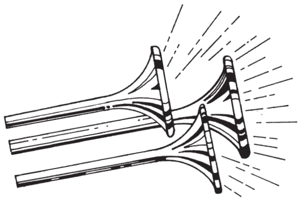
Make your own!

Use objects, or in the boxes below draw examples below of 3 equations using the number 1. Or, look around and find 3 examples of 1 times something where you are.

___ x ___ = ___

___ x ___ = ___

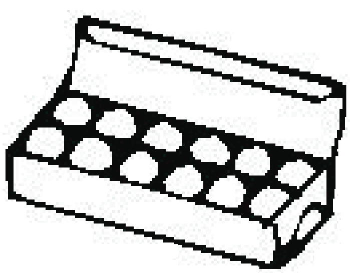
___ x ___ = ___



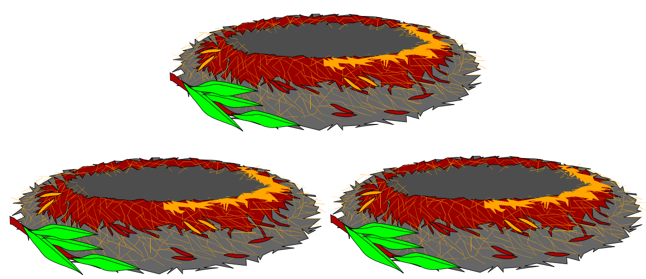
Show what you know!

Write equations for these pictures. Include at least one example of 1 times something, and one example of 0 times something.

1 ___ x ___ = ___



2 ___ x ___ = ___



3 ___ x ___ = ___

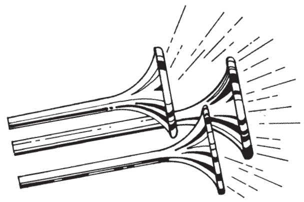
4 ___ x ___ = ___

Make a picture for each of these — you can use squares or draw something real.

$\underline{0} \times \underline{4} = \underline{\qquad}$

$\underline{1} \times \underline{10} = \underline{\qquad}$

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



Test what you know!

There are many ways to see how well you've mastered what you've been working on so far. One excellent way is to use flashcards, because with them you can:

☞ Work on just a few at a time until they're mastered, and add one or two at a time.

☞ Shuffle them, so you know them in any order.

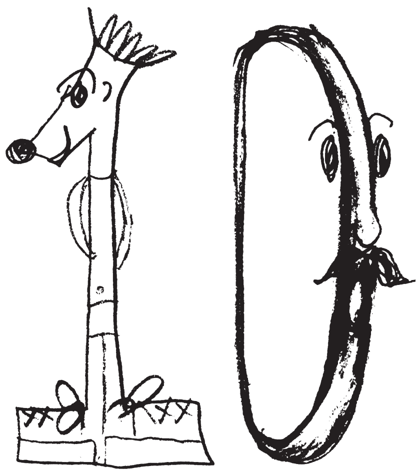
☞ Separate the ones you know *fast* (ones that you've mastered and just need to review) from the ones you know, but you have to think about (ones that you need to practice and master), and from the ones you still need to learn.

☞ Have the answers on the back, so you can check yourself and be sure you're practicing the *right* answers.

However, the best way to prepare for a test is to practice doing exactly what you'll have to do on that test. To help you do that, this book includes tests like the ones a teacher would give in school. They're at the back of the book.

When you've mastered each set of facts, prove it to yourself with the tests. There are tests for each times tables, review tests and tests for the "small" and "big" half of the last, hardest times tables.

By the time you've mastered the times tables, hopefully the word "test" at the top of a page will make you think, "Okay! Here's a chance to show you what I know!"



Chapter Five

The 10-times table!

Our number system is based on the number 10.

We have a special symbol for the ideas of nothing (0), 1, 2 and 3, all the way up to 9.

If you have 1 more than 9, though, we don't have another symbol for the next number — we repeat the 10 symbols we already have.

This makes multiplying by 10 a bit easier. When you multiply any number by 10, the answer is the same symbol or numeral in the next biggest place — for the times tables, that means the same symbol with a 0 after it.

So, 2 x 10 is 20. You can make a rhyme for it:

When you multiply by 10,
put a 0 at the end.

Moving the "digit" over 1 place means it is worth 10 times as much, just as a $10 bill is worth 10 times as much as a $1 bill, and a $100 bill is worth 10 $10 bills.

(There are whole chapters in math books about "place value" if you want to understand it even more. In this book, we'll stick to learning the 10-times table.)

Using pennies and dimes can help you understand the relationships here.

Put 4 pennies here.

Write the equation the 4 pennies show:

___ x ___ = ___

Put 4 rows with 10 pennies in each row here:

What equation is that?

___ x ___ = ___

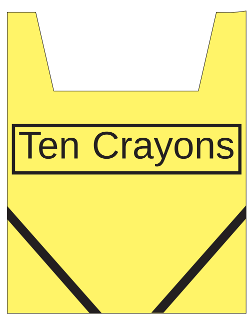
Put 4 dimes here.

Since each dime stands for 10¢, what equation would represent how much money you have here?

____ **x** ____ **=** ____

Now it's your turn — you do 2 more of the 10-times tables (you pick them). Explain how it works to your teacher (or your stuffed animal).

Write an equation that goes with the pictures on this page and the next 2 pages:



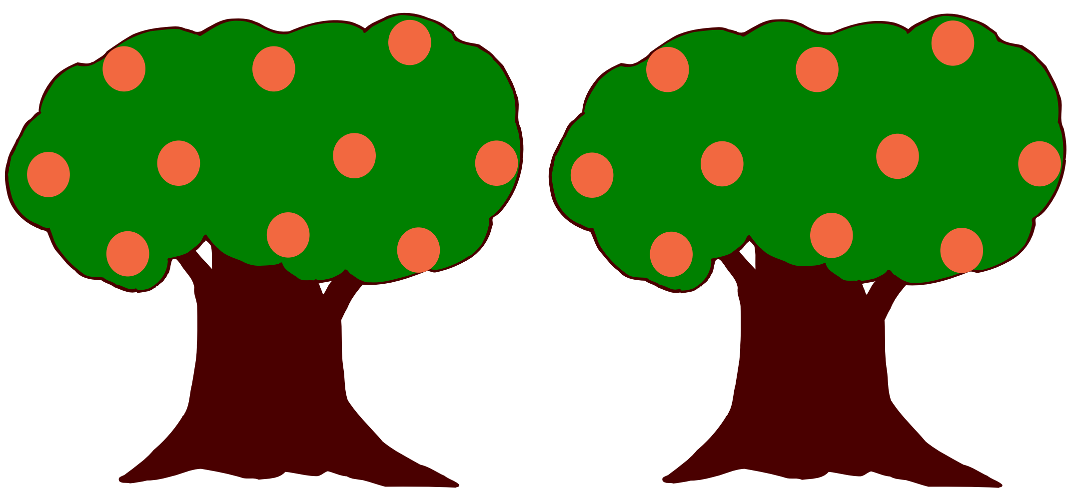
❶ ___ **x** ___ **=** ___

(Hint: How many crayons are *really* here?)

❷ ___ **x** ___ **=** ___

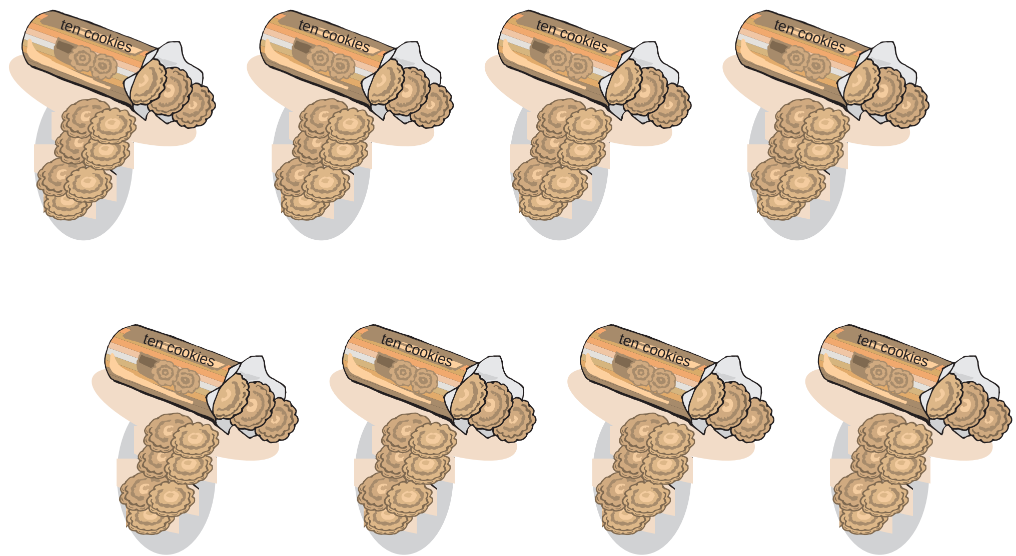
❶ ___ x ___ = ___

❷ ___ x ___ = ___



❸ ___ x ___ = ___

x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x


ten cookies
ten cookies
ten cookies
ten cookies
ten cookies
ten cookies
ten cookies
ten cookies

___ x ___ = ___

___ x ___ = ___

Make a picture to go with each of these equations:

$$\underline{2} \times \underline{10} = \underline{\qquad}$$

$$\underline{10} \times \underline{4} = \underline{\qquad}$$

$\underline{9} \times \underline{10} = \underline{\quad\quad}$

Tell your teacher a story to go with any 2 of the pictures and equations here and on the previous page.

Use a number line, 1-100. Mark off the 10-times answers. What do you notice about them?

Number lines can get too long to fit on a piece of paper. You can do the same thing you would do when you're writing — move down a line and keep going. Here's a number line written that way:

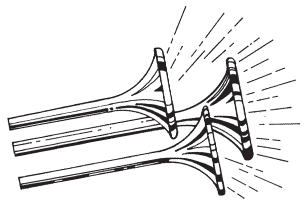
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

How could you turn this chart back into a number line?

Highlight the answers to the 10-times table in one color.

Highlight the answers to the 1-times table in another color.

Where is the answer to the 0-times table?



Enjoy what you know!

You've worked pretty hard to get to this point, so why not take a break? Here's a box to doodle in — only if you want to!

Review page:

Match the equations that go with the pictures on this page and the next one, and explain why they go together:

___ x ___ = ___

6 x 3 ______

0 x 4 ______

1 x 3

___ x ___ = ___

___ x ___ = ___

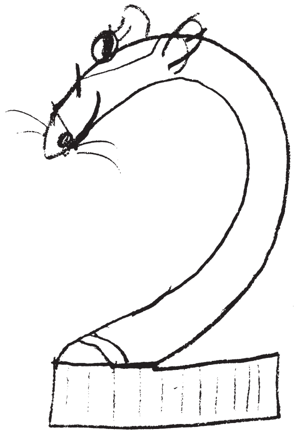
Make a picture to go with each of these equations:

$$\underline{2} \times \underline{10} = \underline{\quad\quad}$$

$$\underline{0} \times \underline{4} = \underline{\quad\quad}$$

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

Make up a story to go with any 2 of the pictures and equations on this page and on the previous page.



Chapter Six

The 2-times tables, the 2-times tables!

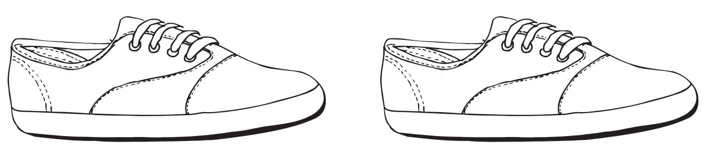
The first three groups of times tables could be learned by understanding a pretty straightforward rule or pattern. Starting here, things get a bit more challenging.

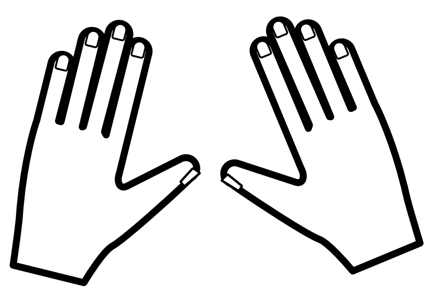
You should be able to complete the equation 10 x 0 = ____ in the time it takes you to move your pencil and write 0. It will take a bit more work to get to that same level of mastery with the 2-times table, but it's worth the extra work.

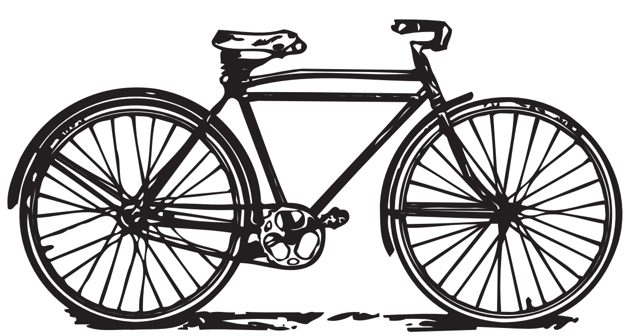
Counting by 2s to get the answer to a 2-times table means you have to think about counting, not about the math problem you're trying to solve. A good mathematician *hates* doing extra work, and counting by 2s is extra work!

Multiplying by 2 is the same as doubling something.

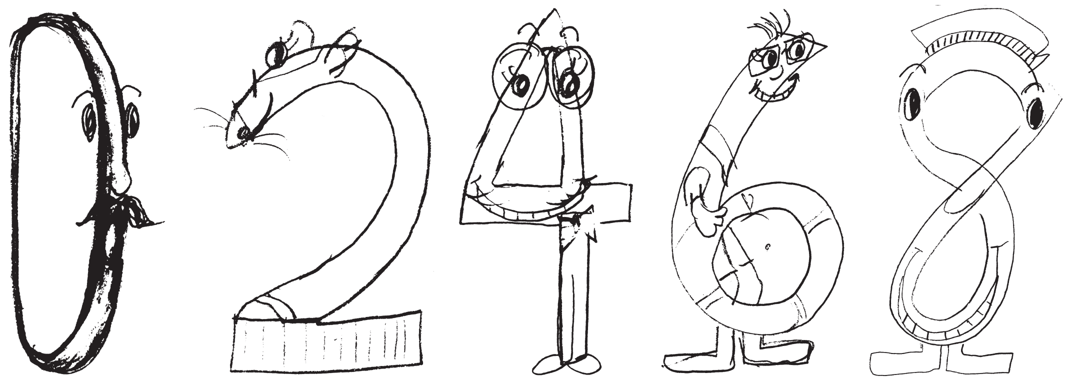
Wherever you had one before, now you have two. Here are some things that come in pairs:







Can you think of 5 more things that come in pairs? Draw them here, or just name them, if you prefer.



Every answer in the 2-times tables is an *even* number.

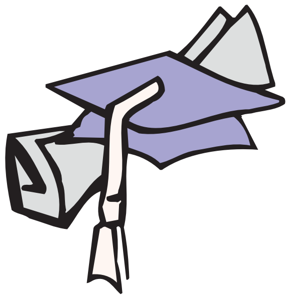
They're called *even* because you can split that many things up into 2 *even* groups — 2 groups of the same size.

All the 2-times table answers are even numbers.

Each one ends in 2, 4, 6, 8 or 0.

	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

Graduating from counting



One way to remember the early 2-times tables is to use this popular cheer:

Or think about what a bug-control expert says as he goes to work:

Or Bossie the cow, as she chews her cud:

2 x 5

When you need to remember higher tables, start with 2 x 5.

This would be the same value as 2 nickels,

or a dime

or 10 pennies.

Using nickels, dimes and pennies, see how many different ways you can show these equations:

2 x 6

2 x 7

2 x 8

2 x 9

2 x 10

2 x 6

If you can't remember what 6 groups of 2 (6 x 2) are worth, it's good to know that it's the same thing as 5 groups of 2, plus 1 more group of the same size.

So, instead of counting 2, 4, 6, 8, 10, remember that 5 2s equal 10 — a dime — and then count up from there for the rest of them.

$$5 \times 2 = 10$$
$$10 + 2 = 12$$

The dime starts here!

Use pennies to figure out the 2-times equations to go with these amounts:

8 12 16 4

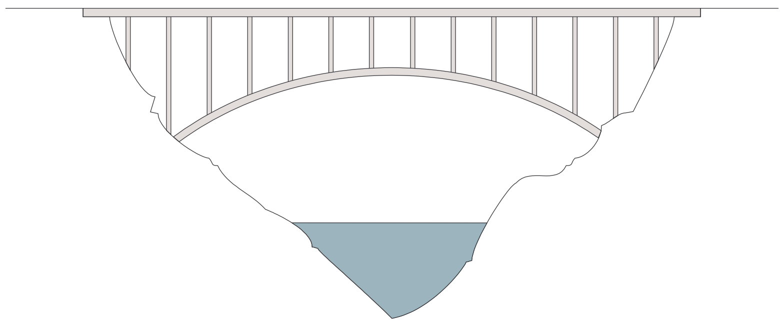
Can you think of ways to do this quickly? Could you use other coins besides pennies to stand for different amounts?

Mark the answers to the 2-times table on the number line below.

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Talk about it!

Bridges to Mastery

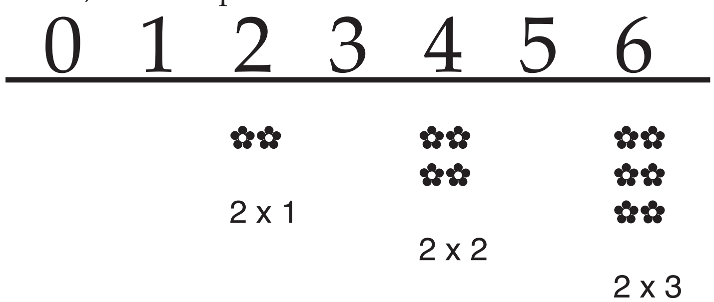


At the back of the book you'll find a chart like this one. You can use it to help you understand and master the 2-times tables. If this helps you, you can also make charts like these for the other times tables, too.

2 x 1	✿✿	2
2 x 2	✿✿ ✿✿	4
2 X 3	✿✿ ✿✿ ✿✿	6
2 x 4	✿✿ ✿✿ ✿✿ ✿✿	8
2 x 5	✿✿ ✿✿ ✿✿ ✿✿ ✿✿	10

2 x 6	✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿	12
2 x 7	✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿	14
2 x 8	✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿	16
2 x 9	✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿	18
2 x 10	✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿	20

Go to the back of the book and cut out each box on Page 145 — the pictures, the times tables, and the numbers that are the answers. Practice matching the picture and the times table with the answer along the number line. When you finish, the first part should look like this:

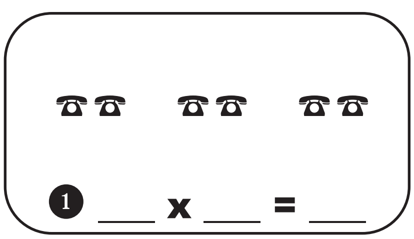


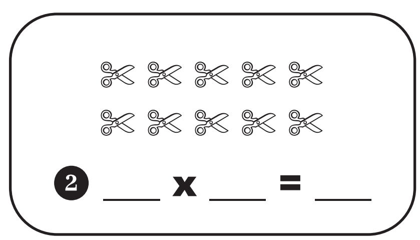
If you have trouble remembering the times tables answers when you're quizzing yourself with flashcards, try this:

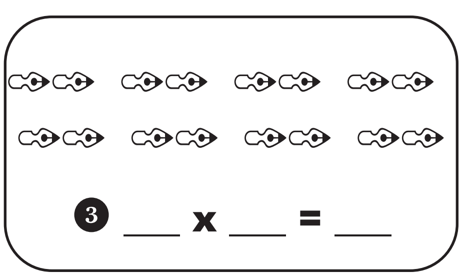
Take just a few tables (2 x 0, 2 x 1, 2 x 5, 2 x 10 are good ones to start with) and quiz yourself with the pictures and tables set out in front of you. When you can answer quickly, take away or cover up the answers or the pictures, but picture them in your mind. Practice quizzing yourself again until you're answering quickly using just the number line or the pictures to help you. Then cover up everything but the number line, and then cover up the number line. As you master them, add 1 or 2 at a time.

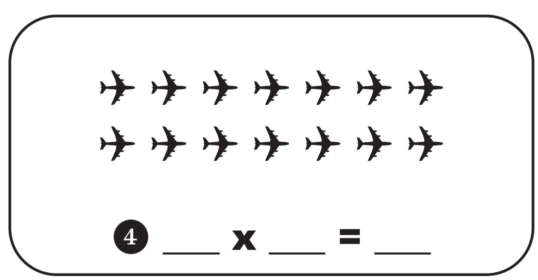
You can also practice these tables by covering up the other parts of the chart, pointing at any of them, and seeing how fast you can say the times table equation with the answer. Then test yourself with flashcards, and when you're ready, try the tests at the back of the book.

What equations go with these 4 pictures:









Game time!

Roll a die.

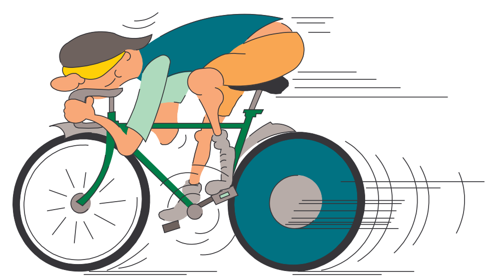
For each number you roll that *is* in the 2-times table, point to it and call out the 2-times equation that goes with that die. For example, if you roll a 4, you would call out, "2 times 2 equals 4."

If the number is not a 2-times answer, give another times table for it. (Hint: It will be in the 1-times table!)

When you can do that really fast, roll *two* dice.

Call out the times tables equations that go with each number (both dice added together) that comes up — if there is one.

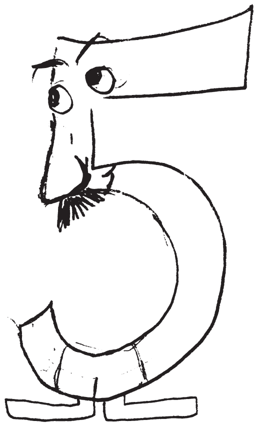
See how fast you can get.



If it's a 2-times table answer, you win that table and can add it to your collection; the first person with 10 of them written down is the winner (or the first person for whom the answers adds up to more than 100).

If you get really good at it, try *three* dice.

You can also make a picture in your mind, especially for the smaller amounts.



Chapter Seven

The 5-times tables

Many people approach the 5-times tables the same way they did the 2-times table: by counting, this time by 5s. You can learn to count by 5s with nickels.

Like the 2-times table, you can find shortcuts. Here are some ideas that might help:

5 is half of 10, so multiplying something by 5 will *always* be half as much as multiplying by 10.

You can either multiply it by 10 and take half — or, if it's an even number, "take half and add a zero."

This can be pretty impressive – if you know that half of 14 is 7, then you know that 14 x 5 is 70.

A number line clearly shows how 5 is half of 10:

1 2 3 4 5 6 7 8 9 10

1 2 3 4 5 6 7 8 9 10

Write the 5-times tables next to their answers on the number line below:

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Write the 10-times tables next to their answers on the number line below:

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

If you have a number line to 100, do the same thing for the longer number line.

Here's a different way to look at the 5-times table:

odd	**even**
	5 x 0 = 0
5 x 1 = 5	5 x 2 = 10
5 x 3= 15	5 x 4 = 20
5 x 5 = 25	5 x 6 = 30
5 x 7 = 35	5 x 8 = 40
5 x 9 = 45	5 x 10 = 50

Why is the first column labeled **odd** 5-times tables?

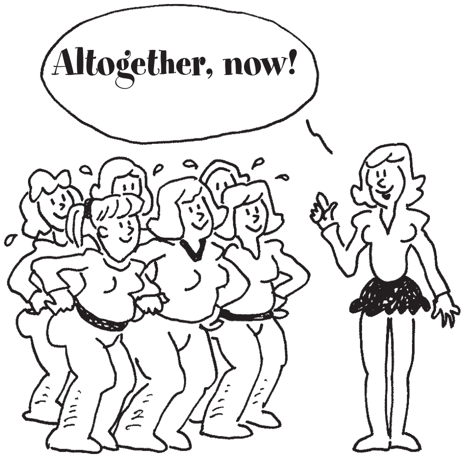
____

____

ANSWER BOX

What do all of the **odd** 5-times tables end in? __________

What do all of the **even** 5-times tables end in? __________



Here's some good practice for understanding the 5-times table:

Use coins to prove this to yourself:

4 dimes is worth how much? _____

What's the equation for that?

___ x ___ = ___

4 nickels is worth how much? _____

What's the equation for that?

___ x ___ = ___

Take your 4 dimes and put them into 2 even groups. (You just divided them in half!)

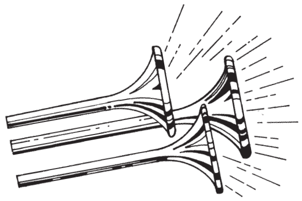
How much is each group worth?

ANSWER BOX

Use your nickels and dimes to show these amounts as different times tables:

30
40
50
60

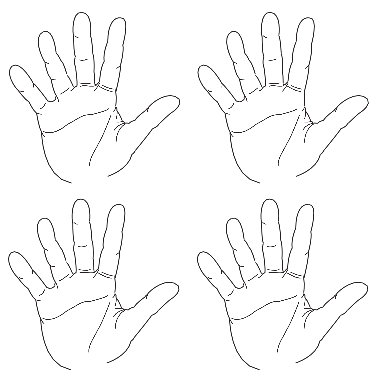
First use dimes, to count by 10s. Then use nickels, to count by 5s. It should be easier to count by 10s seeing groups as their entire amount should be getting faster.



Show what you know!

Write the equations that go with these pictures:

2 ___ x ___ = ___



1 ___ x ___ = ___

3 ___ x ___ = ___

Draw a picture for each of these equations:

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

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

Word problems

Now we're going to combine words and numbers in a statement, then have you break them down into their parts and draw what they mean.

If you take the time to figure these out, later on you'll be able to do word problems of all kinds. (Here's a trick when you're doing a word problem: Put in easy numbers and see if it makes sense that way.)

Here's the first problem:

Sam can fit 5 cans on each shelf in his kitchen. He has 3 shelves.

How many cans can he fit on all the shelves?

You can break this down into its main parts: Sam, 5 cans, kitchen, 3 shelves

Draw Sam, the cans, the kitchen and the shelves, then write the equation the story tells, and write the answer — how many cans can Sam fit on the shelves?

____ x ____ = ____

7 men each mailed 5 packages. How many packages were mailed in all?

___ x ___ = ___

Carlos went to the track 4 times last week. Each time, he ran 5 laps. How many laps did he run last week?

___ x ___ = ___

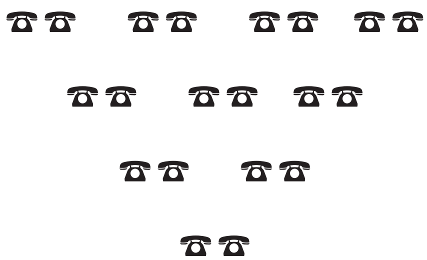
Make up your own stories for two of the other 5-times table equations.

____ x ____ = ____

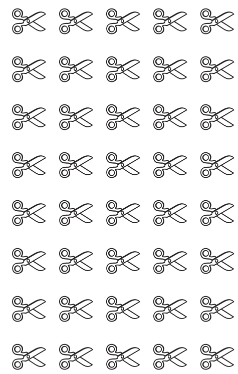
____ x ____ = ____

Review page

Write the times table equation for each of these pictures:



❶ ___ x ___ = ___



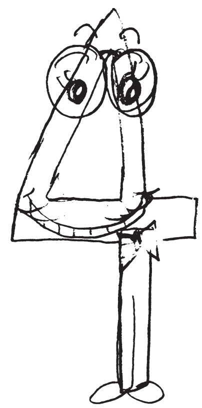
❷ ___ x ___ = ___

❸ ___ x ___ = ___

❹ ___ x ___ = ___

❺ ___ x ___ = ___

There are lots of right answers to this one!



Chapter Eight

Next is the 4s, the 4s, the 4s, the 4s.

Use pennies to figure out the 4-times tables for these numbers:

12 20 16 24

Here's an exercise to show you something new.

You need someone to act as your banker for this exercise, which will introduce you to the concept of *division*. How is *division* different from *multiplication*? (We'll stick to "whole," counting numbers for this — no fractions or decimals.

☞ In *multiplication*, you *multiply* one number by another to get a number that's equal to or larger than one or both of the numbers you're multiplying.

☞In *division*, you *divide* one number by another to get a number that's equal to or smaller than one or both of the numbers you're dividing.

Now, let's explore how division works. In this exercise, your banker will give you several coins; figure out the number they stand for and then figure out the 4-times table that goes with them by *dividing* the amount into four groups. If it helps, trade nickels or dimes in for pennies worth the same amount. Have your banker give you:

— 4 nickels

— 2 dimes

— 2 dimes and 4 pennies

— 3 dimes, 1 nickel and 1 penny

Note how long this takes to do.

Then, when you have memorized these tables, go back and see if you can figure out how much the money is worth, and what it would be if it were divided by 4.

When you can do this quickly, with any combination that would go evenly into groups of 4, you have *mastered* the 4-times tables

Show the 4-times tables on the number line. These are also called “multiples of 4 because you multiply by 4 to get them.

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Show the 4-times table on the chart :

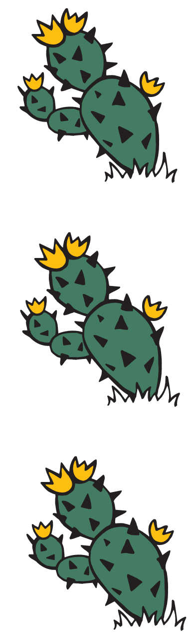
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

What do you notice about where these fall?

Color in the 4-times tables on the chart below.

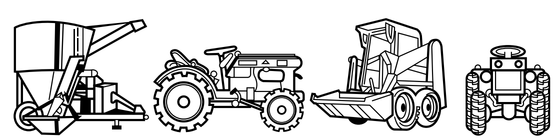
	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

1 ___ x ___ = ___



2 ___ x ___ = ___

3 ___ x ___ = ___



4 ___ x ___ = ___

Here's the 2-step way to figure out the answers in the 4-times tables:

☞ Double it

☞ Double it *again*

Do this with 7 x 4. You can double the 7 two ways:

7 x 2 = ___

7 + 7 = ___

Now, double your answer:

___ x 2 = ___

___ + ___ = ___

(If it's not clear that 7 x 2 is the same as 7 + 7, go back to the section on 5s and do the concept review section, working with symbols, then make a few extra problems with the 4-times tables).

Do the same with 5 x 4:

5 x 2 = ___

5 + 5 = ___

Now, double your answer:

___ x 2 = ___

___ + ___ = ___

Here are 2 more equations to solve. This time, you fill in all the blanks:

3 x 4

___ x ___ = ___

___ + ___ = ___

___ x ___ = ___

___ + ___ = ___

9 x 4

___ x ___ = ___

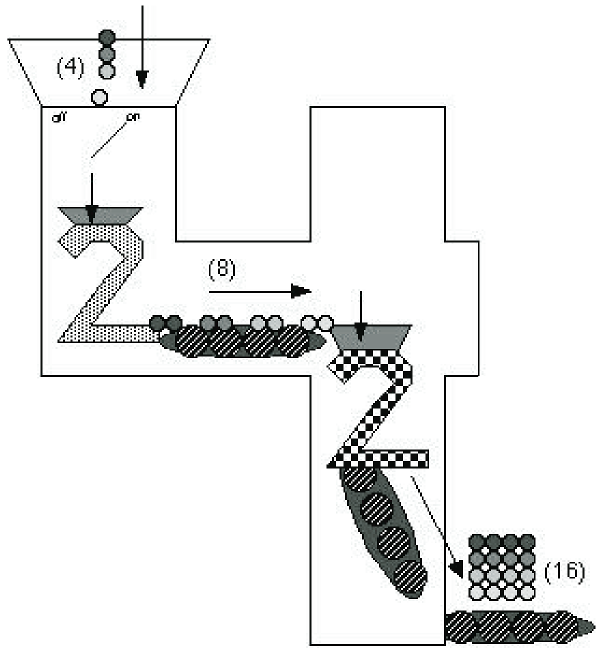
___ + ___ = ___

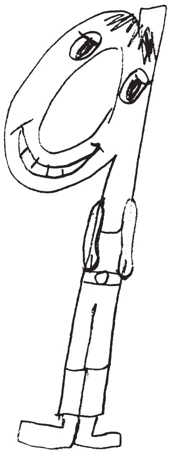
___ x ___ = ___

___ + ___ = ___

A real puzzler

Look at the 4s machine — can you do the same thing with the 10s machine?





Chapter Nine

The 9-times table

Show the 9-times table on the chart.

	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

There are many ways to work with the number 9 and the 9-times table. Choose the one that makes the most sense to you; then you can expand your understanding with the others.

VISUAL

Use the paper strips from the back of the book. You'll need 1s, 10s and 9s for this, because 9 is 1 less than 10.

Put down 1 of the 10 strips (they look like this):

10

What is the equation for this? (How many times did you put down a strip?)

___ x ___ = ___

Under the 10 strip, put a 9 strip and a 1 strip.

What would the equation be for putting down the 9 strip?

___ x ___ = ___

The 1 strip?

___ x ___ = ___

The math symbol for putting down one thing and then another thing is +. So, 10 is 9 + 1 can also be written as:

$$10 \times 1 = (9 \times 1) + (1 \times 1)$$

You could also say this about the 9: 9 is 10 minus 1

$$9 = 10 - 1$$

$$9 \times 1 = (10 \times 1) - (1 \times 1)$$

Now, let's find out what 9 x 2 is by making the line of strips longer.

Add a second 10 strip to the first one. How would you write that as an equation?

___ x ___ = ___

Add a second 9 strip to the 9 line, and another 1 strip to make it even with the 10s.

You can see that 2 x 9 is going to be 2 pieces less than 2 x 10, or 18.

You can move the pieces around — because of the commutative property, it's the same amount — and see that your 9 x 2 line is 2 less than the 10 x 2 line.

Now, make the line longer to see how to figure out 9 x 3.

These are a bit harder — spend some more time practicing them.

Mental math trick!

To add 10 to a big number, keep the number in the 1s place the same and add 1 to the number in the 10s place. Here are some examples:

54 + 10 = 64   328 + 10 = 338

4,924 + 10 = 4934

Try these in your head:

18 + 10   63 +10   29 + 10

Now, try these:

9 + 10   2 + 10   125 + 10   99 + 10   296 + 10

When this gets easy, try this:

To add 9 to anything, add 10 and "back up" 1:

49 + 9 is . . . hmmm . . . 49 plus 10 equals 59 . . . back up 1 . . . 58.

So: 49 + 9 = 58

Try these in your head.

9 + 9   18 + 9   27 +9   45 +9   63+9

There are two ways to figure this out faster. Do the 10-times table for your number, then take your number away from that (either count backwards that many times, or subtract it).

For example, to figure out what 6 x 9 equals, multiply 6 x 10:

6 x 10 = ______

Subtract 6:

6 x 10 = ______ - 6 = ______

You also can use this piece of trivia: *If you add up the digits for a number in the 9-times table, the answer will always be 9*. Here are the 9-times tables numbers, and how this mental math trick works!

18: 1 + 8 is 9

27: 2 + 7 is 9

36: 3 + 6 is 9

Now, you do it:

45: __ + __ is 9

54: __ + __ is 9

63: __ + __ is 9

72: __ + __ is 9

81: __ + __ is 9

90: __ + __ is 9

Here's another way to get a 9-times answer, step by step:

7 x 9

1. "Back up" 1 from 7. That's 6.
2. Subtract 6 from 9. That's 3.
3. Put the two numbers together in order. That's 63.

Check your work:

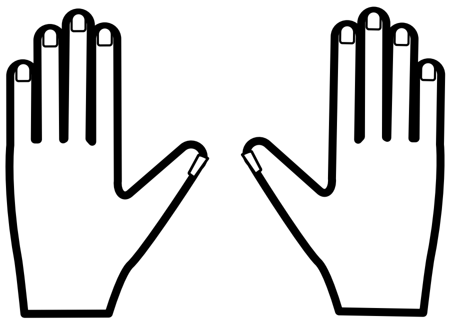
7 x 9 = 63

6 + 3 = 9

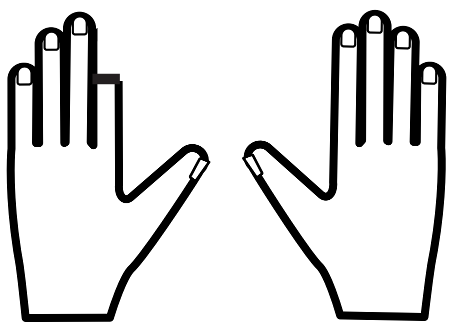
Still another way to get the answers to the 9s uses your hands — it's called the finger method, and it turns your thumbs into fingers! Here's how it works:

4 x 9 = ___

Place all 10 fingers (remember, your thumbs count as fingers) on a table edge.

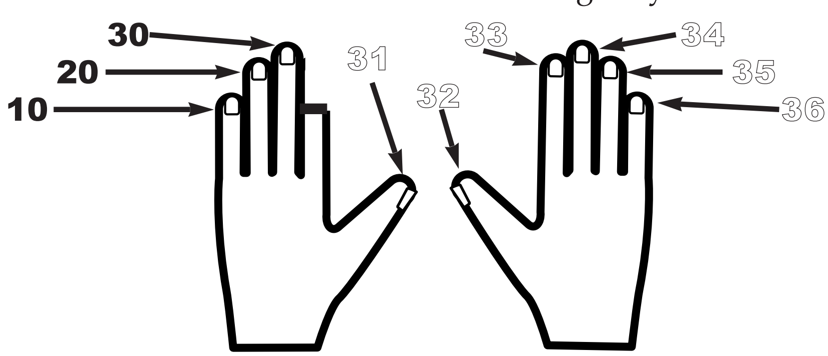


Tuck the fourth finger No. 4) under the table.



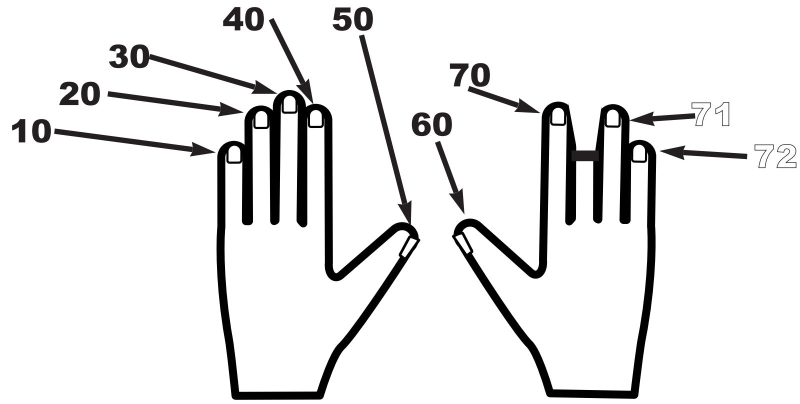
To the left of this tucked-away finger are 3 fingers, and to the right of it are 6 fingers (including your two thumbs).

Starting from the left, count up by 10s until you reach the finger you tucked under, then take that number and count to the right by 1s:



4 x 9 = 36

Here's another example of using your fingers to compute a 9-times equation.



8 x 9 = 72

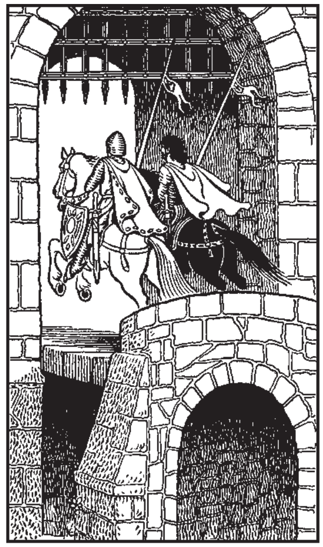
What you want to be able to do is "see" 5 fingers if they're there, so if you're computing 8 x 9, you count by 10s to 8.

And remember that a whole hand is 50!

You've been shown several ways to compute equations in the 9-times table. The important thing to do now is this:

Pick the way to do the 9-times table that works for *you*.

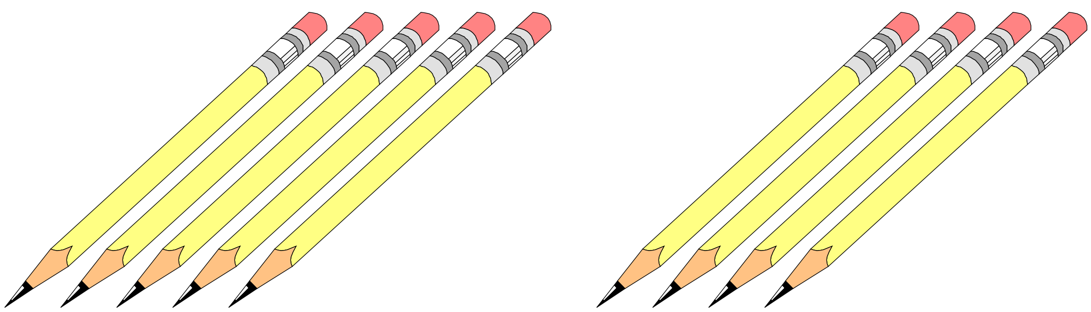
GATEWAY TO ALGEBRA



Math features something called the *distributive property*.

The “distributive” might remind you of the words “distribution” or “distributing.”

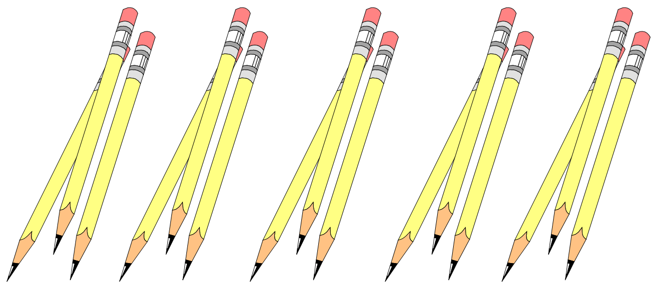
When you talk about distributing things, you’re using one word to say “spread them out” into groups. For example, you can distribute 9 pencils into two groups, one with 5 pencils and the other with 4 pencils:



In the language of math, this concept is written as:

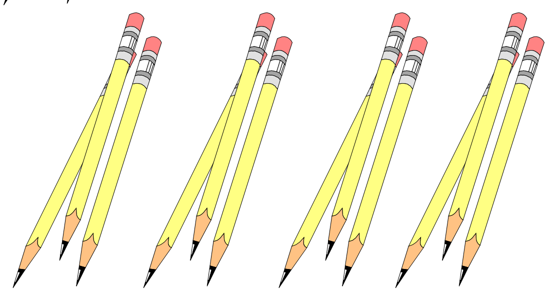
$$5 + 4 = 9$$

You could also distribute 9 groups of pencils the same way:



Here are 5 groups of 3 . . .

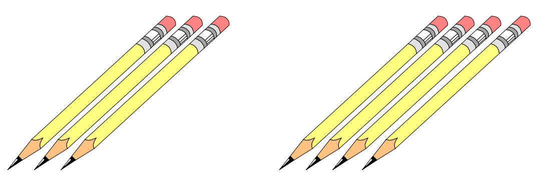
. . . and here are 4 groups of 3.



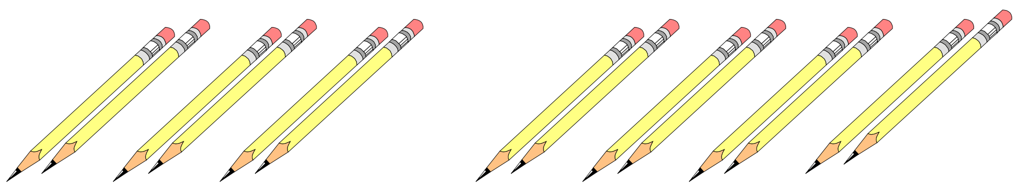
In the language of math, this is:

$$(5 \times 3) + (4 \times 3) = 9 \times 3$$

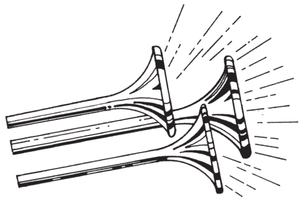
Now, let's take a different number of pencils and group them a new way. You write the equation they represent:



$$\_\_\_ + \_\_\_ = \_\_\_\_$$



$$(\_\_ \times \_\_) + (\_\_ \times \_\_) = \_\_ \times \_\_$$



Show what you know!

If you can explain what the *distributive property* is, then you'd know something that 9 out of 10 eighth graders in a survey (and the editor of this workbook) did not know.

Here's your chance to show that you know something many pupils in middle school don't know. Describe or draw the *distributive property* in the space below:

Chapter Ten

The 3s, 6s, 7s and 8s.

You're getting there! The times tables for 4 numbers are all that's left!

We'll start with the smallest number, 3. Highlight the answers to the 3s times table on the chart and the number line. They are called multiples — do you remember why?

	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

Here are the equations for the 3-times table that you've learned already. How fast can you give the answers?

3 x 0 = ___ 3 x 1 = ___ 3 x 2 = ___

3 x 4 = ___ 3 x 5 = ___ 3 x 9 = ___

3 x 10 = ___

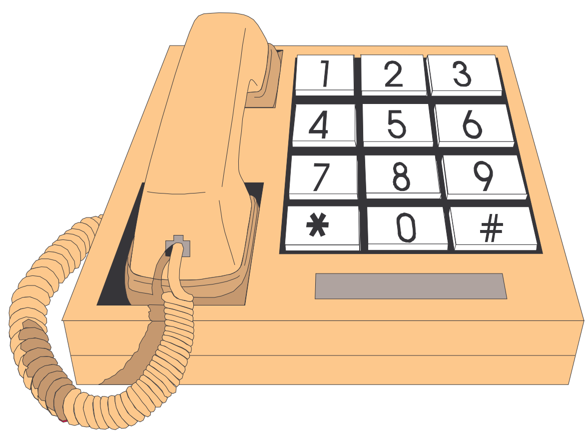
There are only 4 more 3-times equations to learn. Here they are:

3 x 3 = 9 3 x 6 = 18

3 x 7 = 21 3 x 8 = 24

3 x 3 = 9

You can picture 3 x 3 as a tic-tac-toe square, or the first three rows of buttons on a telephone or computer. That last number, 9, is how many buttons you have.



You can also remember that 3 x 3 = 9 by saying this little chant:

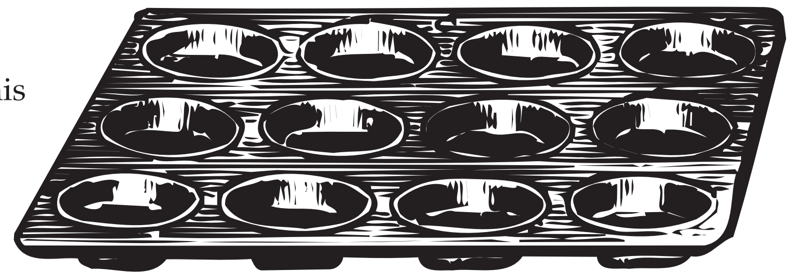
3, 6, 9 — I'm feeling fine!

3 times 3 is fine, nine!

Review: 3 x 4 = 12

Thanks to the *commutative property*, you know what 3 x 4 equals because it's the same as 4 x 3!

3 x 4 is just a dozen, like a dozen eggs.



Can you show how this is a picture of 3 x 4?

How about 4 x 3?

Another way to remember this is to flip the equation. Write it this way:

12 = 3 x 4

Notice the digits say 1-2-3-4.

3 x 6 = 18

We can use the distributive property to break down 3 x 6 into smaller groups:

2 groups of 6 (which you already know is _____)

••••••
••••••

plus

1 group of 6 (which you already know is ____)

••••••

put together is ___________.

Another way to compute 3 x 6 using the distributive property is to break down the 6 into one 3 and a second 3, so you get (3 x 3) + (3 x 3):

3 groups of 3 (which you know is _____)

•••
•••
•••

plus

3 groups of 3 (which you know is ____)

•••
•••
•••

put together is ___________.

Counting bigger numbers

Tally marks are a very old way of making it easier to count bigger numbers. Before numerals like 1, 2 and 3 were invented, people used tally marks to show how many of something they had.

| | | | | |

There once was a group of kids who liked to play a game that was a lot like baseball. This was way back before people wrote numbers at all, so every time someone scored a point, they just added a mark to the board to keep track of it.

At the end of the game, whoever had the most marks won.

It was hard to tell who was winning, though, when you had a number like:

| | | | | |

Things were OK until two brothers came along who were so good that they scored a lot of points. They would get on different teams, just to be fair, but scores got big, like this:

| | | | | | | | | | | | | | | | | |

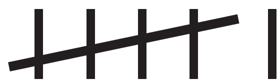
People got frustrated trying to keep track.

And, of course, they wanted to know if they had scored more one day than another. People started spending all day counting, and counting that much meant they'd make mistakes, and they kept having arguments.

One day, a brilliant soul figured out that you could turn the fifth tally mark *sideways*, like this:

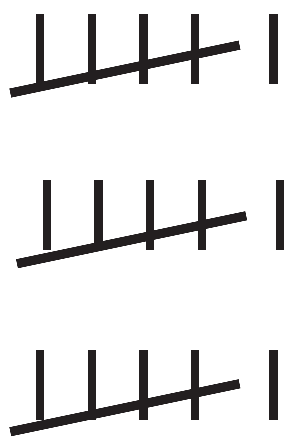
She took 4 up-and-down tally marks but turned the fifth sideways, so 5 looked like this:

Now, 6 would be:



Why do this? Well, if you know that the first group of tally marks is 5, you can count 5-6 a lot faster than 1-2-3-4-5-6. Which can you figure out faster?

Of course, somebody decided to figure out the times tables with these, too. For example, the tally marks above are the same as 6 x 1. Write the equation for this group of tally marks:



___ x ___ = ___

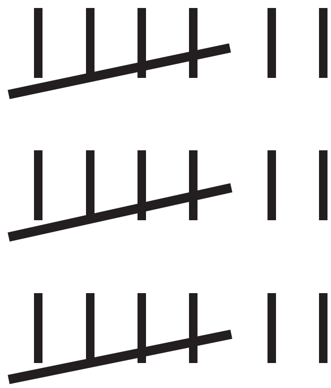
And it doesn't matter which ones you count first, so you can count up the 5s first. You've got 5 x 3, and you know that equals _____

There are 3 tallies left, so you've got ____ + ____ = 18.

(Or, say to yourself: 5, 10, 15 — 16, 17, 18.)

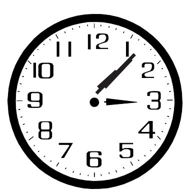
3 x 7 = 21

Write this equation using tallies – it's a little more complicated than 3 x 6, and not as easy to count out.



You can do the same thing with 3 x 7 as you did with 3 x 6 — distribute the numbers differently. Here, you have (3 x 5) + (3 x 2), which is the same as 15 + 6, and that equals 21.

You also can use words to remember what 3 x 7 equals. Ask yourself, what can I do with 3 sevens when I'm 21?



I'll be able to stay up 'til 7 minutes after 3 when I turn 21!

I'll have a birthday cake that says "21" and has 3 rows with 7 candles in each row.

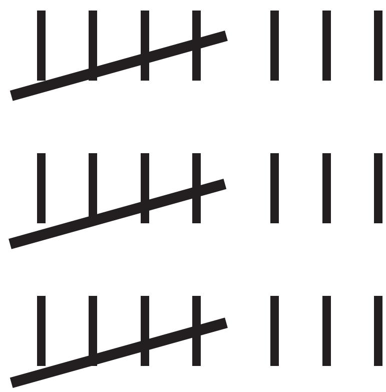
I can have 7 dogs and 3 horses at my 21-room house.

Now, think of your own!

3 x 8 = 24

Here's 3 x 8 written in up-and-down tally marks.

Another way to write 3 groups of 8 tally marks is like this:



That makes this equation the same as (3 x 5) + (3 x 3), so it's 15 + 9. Do you remember how to add 9 to something in your head? (Add 10, then back up 1.)

Here are some ways to use words to remember that 3 x 8 = 24:

☞ Will all 8th graders please bring 3 pencils to Room 24?

☞ My 3 triplets will turn 8 on the 24th.

☞ There are 3 8-hour shifts in a 24-hour day.

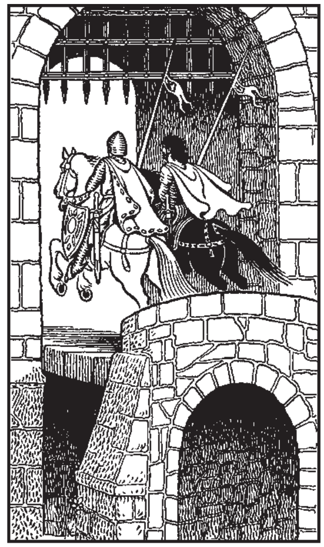
How many different ways could you group numbers to make 24?

There's (3 x 5) + (3 x 3), or (8 x 2) + (8 x 1). What ones can you think of?

AUDITORY MEMORY TRICK

It's great to be completely sure, 8 x 3 is 24. (if you forget which number goes there, remember that *be* and *three* rhyme).

GATEWAY TO KNOWING MORE



All these numbers of groups and numbers in groups that you're making are called *factors* of the big number you're working with.

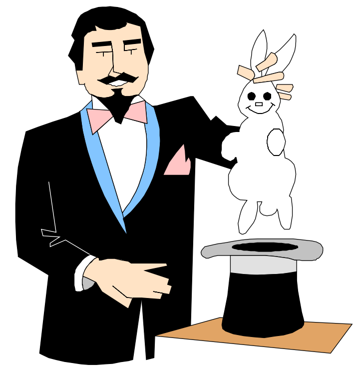
1, 2, 3, 4, 6, 8, 12 and 24 are all *factors* of 24, because you can make groups of things that big and end up with exactly 24 things.

24 is called a *multiple* of those little numbers, because you can multiply the number and get exactly 24. So 24 is a multiple of 1, 2, 3, 4, 6, 8 and 12.

Use your manipulatives and show that this is true. Then use your manipulatives to find *multiples* and *factors* for these numbers:

15	**6**
20	**7**
21	**8**

Another trick with 3s



Here's the number chart you worked on before. The tables for 2 are gray and the tables for 5 are in a box. (You'll notice that 10 is shared by 2 and 5; that's why it's gray and also has a box around it.)

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

The 2s and 5s charts start over nicely every time a new line comes around, so the last digit for the answers to that are always the same.

That won't work for 3s — but there is a trick, a lot like the 9s trick, where the answer to a 9-times equation can be added up to make 9. That number is called the *digit sum*.

The digits to anything that 3 will go into will all *add up* to something that 3 will go into. Look at your 4 answers that you have to learn —

Number	Digits added	Total of digits added together (digit sum)
9	9	9
18	1 + 8	9
21	2 + 1	3
24	2 + 4	6

As you know, 3 goes into 9, 3 and 6 evenly.

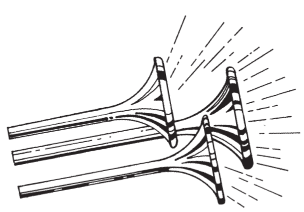
Here are the 6s

Only 3 of these to learn! They are:

6 x 6 = 36   7 x 6 = 42   8 x 6 = 48

Mark the chart to show the 6-times table:

	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100



Show what you know!

How well do you know the 6-times equations you've studied already?

0 x 6 = ___   1 x 6 = ___   2 x 6 = ___

3 x 6 = ___   4 x 6 = ___   5 x 6 = ___

9 x 6 = ___   10 x 6 = ___

6 x 6 = 36

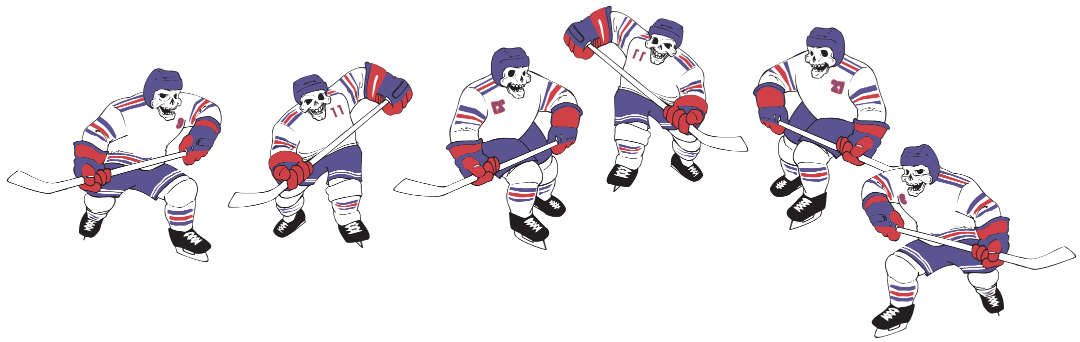
This one rhymes nicely: *6 times 6 is 36*.

Color the 6-times tables on the chart.

	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	**36**	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

Show how you could use nickels and pennies to demonstrate 6 times 6 is 36, by showing 6 of each.

Use this box to show how our friends with tally marks would write 6 x 6 = 36:



6 players scored 6 points each — how many points were scored in all?

Can you break down 6 x 6 into smaller groups, using the *distributive property*? Reason it out – 6 x 6 would be 6 x 5 (30) and then 1 more group of 6.

Adding in your head: When you add something to a multiple of 10 — such as 20, 30 or 70 — if it's a number you won't have to carry, you can just stick the number in that 0 spot.

So, 30 + 6 is 36.

The 6-times tables are also *double* what the same 3-times table would be:

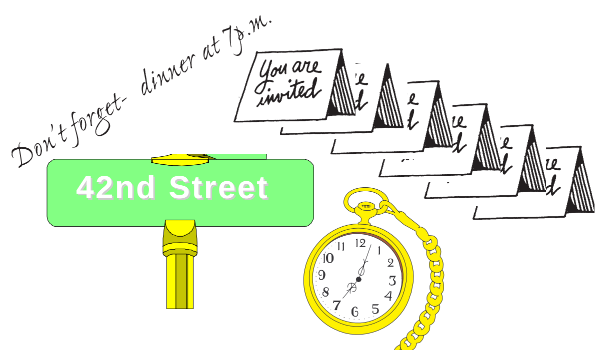
1 x 3 = 3	1 x 6 = 6
2 x 3 = 6	2 x 6 = 12
3 x 3 = 9	3 x 6 = 18
4 x 3 = 12	4 x 6 = 24
5 x 3 = 15	5 x 6 = 30
6 x 3 = 18	6 x 6 = 36
7 x 3 = 21	7 x 6 = 42
8 x 3 = 24	8 x 6 = 48
9 x 3 = 27	9 x 6 = 54
10 x 3 = 30	10 x 6 = 60

6 x 7 = 42

Write this equation using tally marks in the box below:

VISUAL MEMORY TRICK

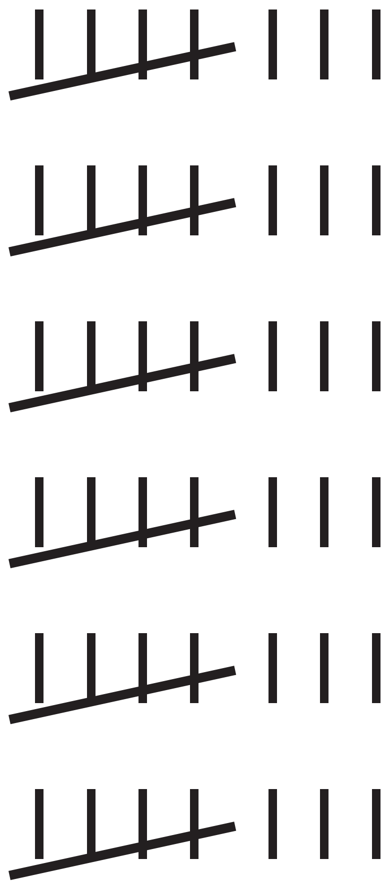
Dinner for 6 at 7 on 42nd Street (or, thanks to the *commutative property*, dinner at 6 for 7 on 42nd street).



$6 \times 8 = 48$

(Listen to it — it's another equation that rhymes: *6 x 8 equals 48*.)

Here's 6 x 8 in tally marks, showing 5 groups of 8 and 1 group of 8:



The 7s

There are only 2 of these! They are:

7 x 7 = 49   **7 x 8 = 56**

It really is a good idea to find these on the chart and on the number line — *especially* if it's easy for you. If it's that easy, how quickly can you do it? And could you explain how to do it to someone who didn't know?

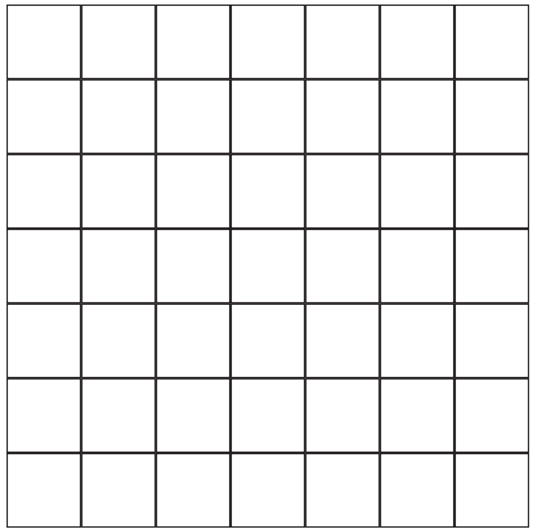
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

7 x 7 = 49

7 x 7 is 49 – it's almost 50!

See the perfect square:



VISUAL MEMORY TRICK

Two players with the number 7 play for the 49ers football team.

AUDITORY MEMORY TRICK

Please recite chapter 7, verse 7, 49 times!

7 x 8 = 56

Another way to write this equation is this: *56 = 7 x 8*.

That way, you can remember it more easily because the numbers are in a row:

5 6 7 8

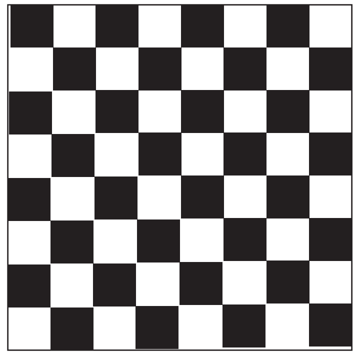
56 = 7 x 8

You can also remember 7 x 8 = 56 by breaking down the numbers into 5 groups of 8 and 2 more groups of 8:

(5 x 8) + (2 x 8) = 40 + 16 = 56

The last 8

8 x 8 = 64



8 x 8 is the familiar checkerboard you use to play checkers or chess.

There are 8 squares on each side, alternating in color.

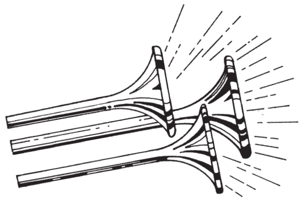
Altogether, there are 64 squares.

You could get this answer by doubling 8 (8 x 2, or 8 + 8, which is _____) and doubling it again (16 x 2, or 16 + 16, which is _______) and doubling it one more time (32 x 2, or 32 + 32, which is _______).

You can also think of this as 5 groups of 8 (or 5 rows of 8 on the checkerboard) plus 3 groups of 8:

$$(5 \times 8) + (3 \times 8) = 40 + 24 = 64$$

Use tally marks in the box below to show 5 groups of 8 plus 3 groups of 8:



Show what you know!

If you know all the times tables, you're done!

But, if you're like most students, there will be a few of these which are harder for you to learn than the rest.

You can think of your own special tricks to master them, or refer to Part 2 of Tools for the Times Tables for some other ideas.

Don't give up until you have them mastered!

Test time

0-times table

1. 8 x 0 = ______
2. 1 x 0 = ______
3. 0 x 0 = ______
4. 9 x 0 = ______
5. 4 x 0 = ______
6. 24 x 0 = ______
7. 897 x 0 = ______
8. 5 x 0 = ______
9. 7 x 0 = ______
10. 2 x 0 = ______
11. 10 x 0 = ______
12. 3 x 0 = ______
13. 6 x 0 = ______
14. n x 0 = ______
15. skunks x 0 = ____________

1-times table

1. 8 x 1 = ______
2. 1 x 1 = ______
3. 0 x 1 = ______
4. 9 x 1 = ______
5. 4 x 1 = ______
6. 24 x 1 = ______
7. 897 x 1 = ______
8. 5 x 1 = ______
9. 7 x 1 = ______
10. 2 x 1 = ______
11. 10 x 1 = ______
12. 3 x 1 = ______
13. 6 x 1 = ______
14. n x 1 = ______
15. pickle x 1 = ___________

1s and 0s

1. 8 x 1 = ______

2. 3 x 0 = ______

3. 1 x 1 = ______

4. 0 x 9 = ______

5. 0 x 1 = ______

6. 0 x 7 = ______

7. 8 x 1 = ______

8. 5 x 0 = ______

9. 1 x 4 = ______

10. 24 x 1 = ______

11. 0 x 8 = ______

12. 4002 x 1 = ______

13. 5 x 1 = ______

14. 7 x 0 = ______

15. 2 x 1 = ______

16. 10 x 1 = ______

17. 0 x 10 = ______

18. 0 x 0 = ______

19. 3 x 1 = ______

20. 6 x 1 = ______

21. 1 x 0 = ______

22. 0 x 5 = ______

23. w x 1 = ______

24. pickle x 0 = ______

25. 1 x a pink elephant =

____

10s

1. 10 x 1 = ______
2. 3 x 10 = ______
3. 10 x 10 = ______
4. 9 x 10 = ______
5. 10 x 0 = ______
6. 7 x 10 = ______
7. 10 x 5 = ______
8. 2 x 10 = ______
9. 8 x 10 = ______
10. 10 x 4 = ______
11. 10 x 6 = ______
12. 5 x 10 = ______
13. 10 x 7 = ______
14. 10 x 3 = ______
15. Challenge yourself!:

    214 x 10 = ______

10s, 1s and 0s — first half

1. 8 x 0 = ______
2. 1 x 3 = ______
3. 10 x 2 = ______
4. 0 x 0 = ______
5. 10 x 10 = ______
6. 9 x 1 = ______
7. 4 x 0 = ______
8. 4 x 1 = ______
9. 10 x 4 = ______
10. 1 x 7 = ______
11. 10 x 0 = ______
12. 2 x 1 = ______
13. 6 x 0 = ______
14. 0 x 1 = ______
15. 8 x 10 = ______
16. 1 x 5 = ______
17. 10 x 6 = ______
18. 7 x 0 = ______
19. 1 x 8 = ______
20. 10 x 3 = ______
21. 9 x 10 = ______
22. 5 x 0 = ______
23. 10 x 7 = ______
24. 0 x 2 = ______
25. 1 x 6 = ______
26. 8 x 10 = ______
27. 9 x 0 = ______
28. 0 x 3 = ______
29. 10 x 5 = ______
30. 1 x 1 = ______
31. 1 x 9 = ______
32. 7 x 10 = ______
33. 53 x 10 = ______
34. 19 x 0 = ______
35. 1 x 37 = ______

10s, 1s and 0s — second half

1. 10 x 2 = ______
2. 6 x 10 = ______
3. 9 x 0 = ______
4. 9 x 1 = ______
5. 8 x 1 = ______
6. 8 x 0 = ______
7. 8 x 10 = ______
8. 1 x 7 = ______
9. 7 x 10 = ______
10. 1 x 2 = ______
11. 5 x 0 = ______
12. 0 x 6 = ______
13. 10 x 9 = ______
14. 0 x 0 = ______
15. 0 x 2 = ______
16. 1 x 5 = ______
17. 7 x 10 = ______
18. 10 x 5 = ______
19. 4 x 0 = ______
20. 3 x 10 = ______
21. 1 x 0 = ______
22. 1 x 6 = ______
23. 10 x 10 = ______
24. 0 x 7 = ______
25. 75 x 1 = ______
26. 4 x 1 = ______
27. 1 x 3 = ______
28. 10 x 0 = ______
29. 22 x 0 = ______
30. 10 x 4 = ______

2-times table

1. 2 x 0 = ______
2. 1 x 2 = ______
3. 10 x 2 = ______
4. 2 x 8 = ______
5. 5 x 2 = ______
6. 9 x 2 = ______
7. 2 x 6 = ______
8. 3 x 2 = ______
9. 2 x 2 = ______
10. 2 x 4 = ______
11. 7 x 2 = ______
12. 6 x 2 = ______
13. 2 x 7 = ______
14. 8 x 2 = ______
15. 2 x 9 = ______

2s and 10s, 1s and 0s

1. 1 x 0 = ______
2. 10 x 2 = ______
3. 8 x 10 = ______
4. 5 x 1 = ______
5. 2 x 6 = ______
6. 0 x 9 = ______
7. 10 x 3 = ______
8. 2 x 7 = ______
9. 3 x 0 = ______
10. 10 x 4 = ______
11. 1 x 8 = ______
12. 0 x 2 = ______
13. 9 x 1 = ______
14. 9 x 2 = ______
15. 10 x 5 = ______
16. 1 x 0 = ______
17. 8 x 2 = ______
18. 10 x 7 = ______
19. 2 x 5 = ______
20. 0 x 4 = ______
21. 2 x 2 = ______
22. 4 x 1 = ______
23. 0 x 6 = ______
24. 10 x 9 = ______
25. 2 x 3 = ______
26. 10 x 0 = ______
27. 7 x 1 = ______
28. 0 x 5 = ______
29. 6 x 1 = ______
30. 10 x 10 = ______
31. 2 x 4 = ______
32. 6 x 10 = ______
33. 8 x 2 = ______
34. 0 x 7 = ______
35. 2 x 1 = ______
36. 10 x 1 = ______
37. 3 x 1 = ______
38. 1 x 932 = ______
39. 0 x fish = ______
40. 10 x 39 = ______

5-times table

1. 5 x 3 = ______
2. 5 x 5 = ______
3. 1 x 5 = ______
4. 5 x 9 = ______
5. 5 x 7 = ______
6. 10 x 5 = ______
7. 6 x 5 = ______
8. 5 x 4 = ______
9. 8 x 5 = ______
10. 5 x 2 = ______
11. 5 x 10 = ______
12. 0 x 5 = ______
13. 7 x 5 = ______
14. 5 x 8 = ______
15. 9 x 5 = ______

5s and 2s and 10s, 1s and 0s

1. 8 x 5 = ______
2. 2 x 7 = ______
3. 3 x 10 = ______
4. 2 x 4 = ______
5. 5 x 7 = ______
6. 0 x 0 = ______
7. 10 x 7 = ______
8. 9 x 2 = ______
9. 3 x 5 = ______
10. 4 x 10 = ______
11. 9 x 1 = ______
12. 10 x 2 = ______
13. 5 x 4 = ______
14. 6 x 5 = ______
15. 0 x 9 = ______
16. 2 x 2 = ______
17. 5 x 5 = ______
18. 10 x 0 = ______
19. 2 x 5 = ______
20. 9 x 10 = ______
21. 2 x 3 = ______
22. 5 x 1 = ______
23. 6 x 10 = ______
24. 0 x 4 = ______
25. 1 x 3 = ______
26. 1 x 7 = ______
27. 1 x 1 = ______
28. 2 x 6 = ______
29. 10 x 8 = ______
30. 5 x 9 = ______
31. 1 x 7 = ______
32. 8 x 2 = ______
33. 1 x 5 = ______
34. 5 x 10 = ______
35. 2 x 1 = ______

4-times table

1. 8 x 4 = ______
2. 4 x 1 = ______
3. 4 x 7 = ______
4. 0 x 4 = ______
5. 10 x 4 = ______
6. 4 x 2 = ______
7. 4 x 4 = ______
8. 9 x 4 = ______
9. 4 x 3 = ______
10. 4 x 6 = ______
11. 4 x 5 = ______
12. 6 x 4 = ______
13. 4 x 7 = ______
14. 8 x 4 = ______
15. 4 x 9 = ______

4s, 5s, 2s, 10s, 1s and 0s

1. 4 x 2 = ______
2. 5 x 1 = ______
3. 8 x 4 = ______
4. 10 x 4 = ______
5. 4 x 6 = ______
6. 0 x 2 = ______
7. 3 x 4 = ______
8. 5 x 7 = ______
9. 1 x 8 = ______
10. 9 x 10 = ______
11. 4 x 9 = ______
12. 2 x 9 = ______
13. 5 x 6 = ______
14. 2 x 8 = ______
15. 5 x 0 = ______
16. 5 x 4 = ______
17. 1 x 6 = ______
18. 7 x 4 = ______
19. 3 x 1 = ______
20. 7 x 2 = ______
21. 5 x 9 = ______
22. 4 x 1 = ______
23. 10 x 1 = ______
24. 9 x 4 = ______
25. 0 x 7 = ______
26. 2 x 6 = ______
27. 10 x 5 = ______
28. 0 x 9 = ______
29. 8 x 4 = ______
30. 2 x 2 = ______
31. 8 x 5 = ______
32. 10 x 3 = ______
33. 0 x 4 = ______
34. 5 x 5 = ______
35. 9 x 1 = ______
36. 8 x 2 = ______
37. 4 x 7 = ______
38. 10 x 7 = ______
39. 4 x 6 = ______
40. 4 x 4 = ______
41. 6 x 10 = ______
42. 3 x 5 = ______
43. 5 x 5 = ______
44. 2 x 1 = ______
45. 7 x 4 = ______
46. 4 x 9 = ______
47. 3 x 4 = ______
48. 6 x 0 = ______
49. 2 x 8 = ______
50. 6 x 4 = ______

4s, 5s, 2s, 10s, 1s and 0s

1. 2 x 8 = ______
2. 3 x 5 = ______
3. 6 x 4 = ______
4. 0 x 1 = ______
5. 9 x 1 = ______
6. 10 x 2 = ______
7. 3 x 4 = ______
8. 0 x 7 = ______
9. 2 x 4 = ______
10. 5 x 10 = ______
11. 0 x 6 = ______
12. 5 x 1 = ______
13. 4 x 5 = ______
14. 10 x 10 = ______
15. 9 x 4 = ______
16. 2 x 0 = ______
17. 4 x 10 = ______
18. 1 x 2 = ______
19. 3 x 1 = ______
20. 7 x 5 = ______
21. 8 x 10 = ______
22. 3 x 2 = ______
23. 4 x 4 = ______
24. 9 x 0 = ______
25. 6 x 2 = ______
26. 0 x 5 = ______
27. 9 x 10 = ______
28. 1 x 4 = ______
29. 8 x 4 = ______
30. 5 x 5 = ______
31. 8 x 0 = ______
32. 2 x 5 = ______
33. 0 x 10 = ______
34. 2 x 7 = ______
35. 9 x 5 = ______
36. 4 x 1 = ______
37. 9 x 2 = ______
38. 7 x 1 = ______
39. 5 x 6 = ______
40. 4 x 4 = ______
41. 0 x 4 = ______
42. 7 x 4 = ______
43. 8 x 5 = ______
44. 3 x 1 = ______
45. 5 x 4 = ______
46. 2 x 2 = ______
47. 3 x 4 = ______
48. 6 x 1 = ______
49. 7 x 4 = ______
50. 4 x 9 = ______

9-times table — first half

1. 9 x 3 = ______	6. 9 x 5 = ______	11. 1 x 9 = ______
2. 9 x 2 = ______	7. 4 x 9 = ______	12. 9 x 3 = ______
3. 9 x 5 = ______	8. 2 x 9 = ______	13. 2 x 9 = ______
4. 3 x 9 = ______	9. 9 x 4 = ______	14. 9 x 4 = ______
5. 9 x 4 = ______	10. 5 x 9 = ______	15. 5 x 9 = ______

9-times table — second half

1. 9 x 9 = ______	6. 8 x 9 = ______	11. 6 x 9 = ______
2. 9 x 6 = ______	7. 6 x 9 = ______	12. 9 x 8 = ______
3. 9 x 10 = ______	8. 9 x 6 = ______	13. 8 x 9 = ______
4. 9 x 7 = ______	9. 9 x 9 = ______	14. 9 x 6 = ______
5. 9 x 8 = ______	10. 7 x 9 = ______	15. 10 x 9 = ______

9-times table — all

1. 9 x 3 = ______	6. 10 x 9 = ______	11. 9 x 10 = ______
2. 9 x 5 = ______	7. 6 x 9 = ______	12. 0 x 9 = ______
3. 1 x 9 = ______	8. 9 x 4 = ______	13. 7 x 9 = ______
4. 9 x 9 = ______	9. 8 x 9 = ______	14. 9 x 8 = ______
5. 9 x 7 = ______	10. 9 x 2 = ______	15. 9 x 9 = ______

9s, 4s, 5s, 2s, 10s, 1s and 0s

1. 9 x 9 = ______
2. 5x 5 = ______
3. 4 x 4 = ______
4. 2 x 2 = ______
5. 1 x 1 = ______
6. 7 x 5 = ______
7. 9 x 8 = ______
8. 6 x 2 = ______
9. 10 x 5 = ______
10. 0 x 9 = ______
11. 3 x 5 = ______
12. 9 x 6 = ______
13. 1 x 7 = ______
14. 2 x 8 = ______
15. 7 x 0 = ______
16. 5 x 4 = ______
17. 4 x 6 = ______
18. 9 x 4 = ______
19. 3 x 10 = ______
20. 2 x 1 = ______
21. 6 x 5 = ______
22. 1 x 4 = ______
23. 10 x 2 = ______
24. 8 x 1 = ______
25. 2 x 5 = ______
26. 9 x 5 = ______
27. 2 x 3 = ______
28. 3 x 9 = ______
29. 4 x 0 = ______
30. 7 x 4 = ______
31. 10 x 9 = ______
32. 7 x 2 = ______
33. 5 x 1 = ______
34. 8 x 4 = ______
35. 6 x 0 = ______
36. 10 x 8 = ______
37. 10 x 10 = ______
38. 1 x 9 = ______
39. 0 x 10 = ______
40. 9 x 7 = ______
41. 10 x 4 = ______
42. 9 x 3 = ______
43. 5 x 4 = ______
44. 7 x 10 = ______
45. 1 x 6 = ______
46. 10 x 5 = ______
47. 0 x 8 = ______
48. 3 x 1 = ______
49. 4 x 3 = ______
50. 4 x 9 = ______

3-times table — first half

1. 3 x 3 = ______
2. 3 x 2 = ______
3. 3 x 5 = ______
4. 0 x 3 = ______
5. 3 x 4 = ______
6. 3 x 5 = ______
7. 4 x 3 = ______
8. 2 x 3 = ______
9. 3 x 4 = ______
10. 5 x 3 = ______
11. 1 x 3 = ______
12. 3 x 3 = ______
13. 2 x 3 = ______
14. 3 x 4 = ______
15. 5 x 3 = ______

3-times table — second half

1. 3 x 9 = ______
2. 3 x 6 = ______
3. 3 x 10 = ______
4. 3 x 7 = ______
5. 3 x 8 = ______
6. 8 x 3 = ______
7. 6 x 3 = ______
8. 3 x 6 = ______
9. 9 x 3 = ______
10. 7 x 3 = ______
11. 6 x 3 = ______
12. 3 x 8 = ______
13. 8 x 3 = ______
14. 3 x 6 = ______
15. 10 x 3 = ______

3-times table — all

1. 3 x 3 = ______
2. 3 x 5 = ______
3. 1 x 3 = ______
4. 3 x 9 = ______
5. 3 x 7 = ______
6. 10 x 3 = ______
7. 6 x 3 = ______
8. 3 x 4 = ______
9. 8 x 3 = ______
10. 3 x 2 = ______
11. 3 x 10 = ______
12. 0 x 3 = ______
13. 7 x 3 = ______
14. 3 x 8 = ______
15. 9 x 3 = ______

3s, 9s, 4s, 5s, 2s, 10s, 1s and 0s

1. 0 x 0 = ______

2. 1 x 1 = ______

3. 2 x 2 = ______

4. 3 x 3 = ______

5. 4 x 4 = ______

6. 5 x 5 = ______

7. 9 x 9 = ______

8. 10 x 10 = ______

9. 2 x 5 = ______

10. 8 x 3 = ______

11. 4 x 7 = ______

12. 5 x 7 = ______

13. 9 x 1 = ______

14. 10 x 3 = ______

15. 6 x 2 = ______

16. 3 x 5 = ______

17. 1 x 7 = ______

18. 9 x 2 = ______

19. 8 x 10 = ______

20. 5 x 4 = ______

21. 9 x 8 = ______

22. 3 x 4 = ______

23. 10 x 2 = ______

24. 6 x 3 = ______

25. 0 x 4 = ______

26. 8 x 5 = ______

27. 7 x 3 = ______

28. 9 x 6 = ______

29. 2 x 3 = ______

30. 1 x 88 = ______

31. 6 x 4 = ______

32. 9 x 7 = ______

33. 10 x 7 = ______

34. 3 x 1 = ______

35. 6 x 5 = ______

36. 8 x 2 = ______

37. 3 x 9 = ______

38. 2 x 0 = ______

39. 9 x 3 = ______

40. 4 x 2 = ______

41. 0 x 3 = ______

42. 9 x 4 = ______

43. 5 x 7 = ______

44. 1 x 4 = ______

45. 4 x 8 = ______

46. 5 x 1 = ______

47. 2 x 7 = ______

48. 9 x 5 = ______

49. 10 x 4 = ______

50. 7 x 3 = ______

6s — first half

1. 6 x 2 = ______
2. 3 x 6 = ______
3. 6 x 1 = ______
4. 6 x 3 = ______
5. 6 x 5 = ______
6. 4 x 6 = ______
7. 5 x 6 = ______
8. 2 x 6 = ______
9. 3 x 6 = ______
10. 6 x 4 = ______
11. 6 x 2 = ______
12. 2 x 6 = ______
13. 6 x 4 = ______
14. 4 x 6 = ______
15. 5 x 6 = ______

6s — second half

1. 10 x 6 = ______
2. 6 x 6 = ______
3. 6 x 7 = ______
4. 9 x 6 = ______
5. 6 x 8 = ______
6. 7 x 6 = ______
7. 6 x 9 = ______
8. 6 x 6 = ______
9. 8 x 6 = ______
10. 6 x 7 = ______
11. 9 x 6 = ______
12. 6 x 6 = ______
13. 6 x 8 = ______
14. 7 x 6 = ______
15. 8 x 6 = ______

6s — all

1. 3 x 6 = ______
2. 6 x 5 = ______
3. 10 x 6 = ______
4. 7 x 6 = ______
5. 6 x 9 = ______
6. 6 x 1 = ______
7. 6 x 3 = ______
8. 2 x 6 = ______
9. 8 x 6 = ______
10. 6 x 6 = ______
11. 6 x 4 = ______
12. 7 x 6 = ______
13. 6 x 9 = ______
14. 2 x 6 = ______
15. 9 x 6 = ______

6s, 3s, 9s, 4s, 5s, 2s, 10s, 1s and 0s

1. 10x10 = ______
2. 9 x 9 = ______
3. 6 x 6 = ______
4. 5 x 5 = ______
5. 4 x 4 = ______
6. 3 x 3 = ______
7. 2 x 2 = ______
8. 1 x 1 = ______
9. 0 x 0 = ______
10. 8 x 3 = ______
11. 4 x 7 = ______
12. 5 x 7 = ______
13. 7 x 6 = ______
14. 10 x 3 = ______
15. 6 x 2 = ______
16. 6 x 6 = ______
17. 1 x 7 = ______
18. 9 x 2 = ______
19. 8 x 10 = ______
20. 5 x 4 = ______
21. 9 x 8 = ______
22. 3 x 4 = ______
23. 10 x 2 = ______
24. 6 x 3 = ______
25. 0 x 4 = ______
26. 8 x 5 = ______
27. 7 x 3 = ______
28. 9 x 6 = ______
29. 2 x 3 = ______
30. 1 x 88 = ______
31. 6 x 4 = ______
32. 9 x 7 = ______
33. 10 x 7 = ______
34. 3 x 1 = ______
35. 6 x 5 = ______
36. 8 x 2 = ______
37. 3 x 9 = ______
38. 6 x 8 = ______
39. 9 x 3 = ______
40. 4 x 2 = ______
41. 0 x 3 = ______
42. 9 x 4 = ______
43. 5 x 7 = ______
44. 1 x 4 = ______
45. 4 x 8 = ______
46. 5 x 1 = ______
47. 2 x 7 = ______
48. 9 x 5 = ______
49. 10 x 4 = ______
50. 7 x 3 = ______

7s — first half

1. 7 x 3 = _____	6. 4 x 7 = _____	11. 0 x 7 = _____
2. 7 x 5 = _____	7. 7 x 2 = _____	12. 7 x 5 = _____
3. 7 x 1 = _____	8. 2 x 7 = _____	13. 7 x 4 = _____
4. 3 x 7 = _____	9. 3 x 7 = _____	14. 7 x 2 = _____
5. 7 x 5 = _____	10. 7 x 4 = _____	15. 7 x 3 = _____

7s — second half

1. 7 x 7 = _____	6. 7 x 9 = _____	11. 6 x 7 = _____
2. 7 x 10 = _____	7. 7 x 8 = _____	12. 7 x 9 = _____
3. 7 x 6 = _____	8. 7 x 7 = _____	13. 7 x 7 = _____
4. 8 x 7 = _____	9. 9 x 7 = _____	14. 7 x 10 = _____
5. 6 x 7 = _____	10. 8 x 7 = _____	15. 8 x 7 = _____

7s — all

1. 7 x 10 = _____	6. 7 x 1 = _____	11. 0 x 7 = _____
2. 7 x 5 = _____	7. 6 x 7 = _____	12. 7 x 4 = _____
3. 3 x 7 = _____	8. 7 x 8 = _____	13. 7 x 6 = _____
4. 7 x 9 = _____	9. 2 x 7 = _____	14. 7 x 4 = _____
5. 7 x 7 = _____	10. 8 x 7 = _____	15. 7 x 8 = _____

7s, 6s, 3s, 9s, 4s, 5s, 2s, 10s, 1s and 0s

1. 3 x 6 = ______
2. 2 x 10 = ______
3. 4 x 3 = ______
4. 8 x 9 = ______
5. 5 x 4 = ______
6. 1 x 1 = ______
7. 2 x 2 = ______
8. 3 x 3 = ______
9. 4 x 4 = ______
10. 5 x 5 = ______
11. 6 x 6 = ______
12. 7 x 7 = ______
13. 9 x 9 = ______
14. 10 x 10 = ______
15. 8 x 7 = ______
16. 5 x 6 = ______
17. 1 x 3 = ______
18. 0 x 10 = ______
19. 7 x 9 = ______
20. 4 x 6 = ______
21. 7 x 7 = ______
22. 4 x 10 = ______
23. 5 x 9 = ______
24. 7 x 2 = ______
25. 1 x 5 = ______
26. 8 x 4 = ______
27. 1 x 9 = ______
28. 7 x 5 = ______
29. 7 x 4 = ______
30. 3 x 8 = ______
31. 6 x 7 = ______
32. 10 x 8 = ______
33. 2 x 9 = ______
34. 6 x 6 = ______
35. 5 x 3 = ______
36. 2 x 6 = ______
37. 3 x 10 = ______
38. 4 x 1
39. 8 x 7 = ______
40. 4 x 9 = ______
41. 3 x 0 = ______
42. 2 x 4 = ______
43. 3 x 9 = ______
44. 0 x 2 = ______
45. 6 x 8 = ______
46. 2 x 8 = ______
47. 97 x 1 = ______
48. 3 x 2 = ______
49. 6 x 9 = ______
50. 10 x 7 = ______

8s — first half

1. 8 x 3 = ______
2. 3 x 8 = ______
3. 8 x 5 = ______
4. 1 x 8 = ______
5. 8 x 0 = ______
6. 2 x 8 = ______
7. 8 x 4 = ______
8. 8 x 3 = ______
9. 5 x 8 = ______
10. 1 x 8 = ______
11. 8 x 2 = ______
12. 4 x 8 = ______
13. 3 x 8 = ______
14. 8 x 4 = ______
15. 5 x 8 = ______

8s — second half

1. 8 x 7 = ______
2. 8 x 10 = ______
3. 8 x 6 = ______
4. 8 x 8 = ______
5. 6 x 8 = ______
6. 8 x 9 = ______
7. 8 x 8 = ______
8. 8 x 7 = ______
9. 9 x 8 = ______
10. 8 x 8 = ______
11. 6 x 8 = ______
12. 8 x 9 = ______
13. 8 x 7 = ______
14. 8 x 10 = ______
15. 8 x 8 = ______

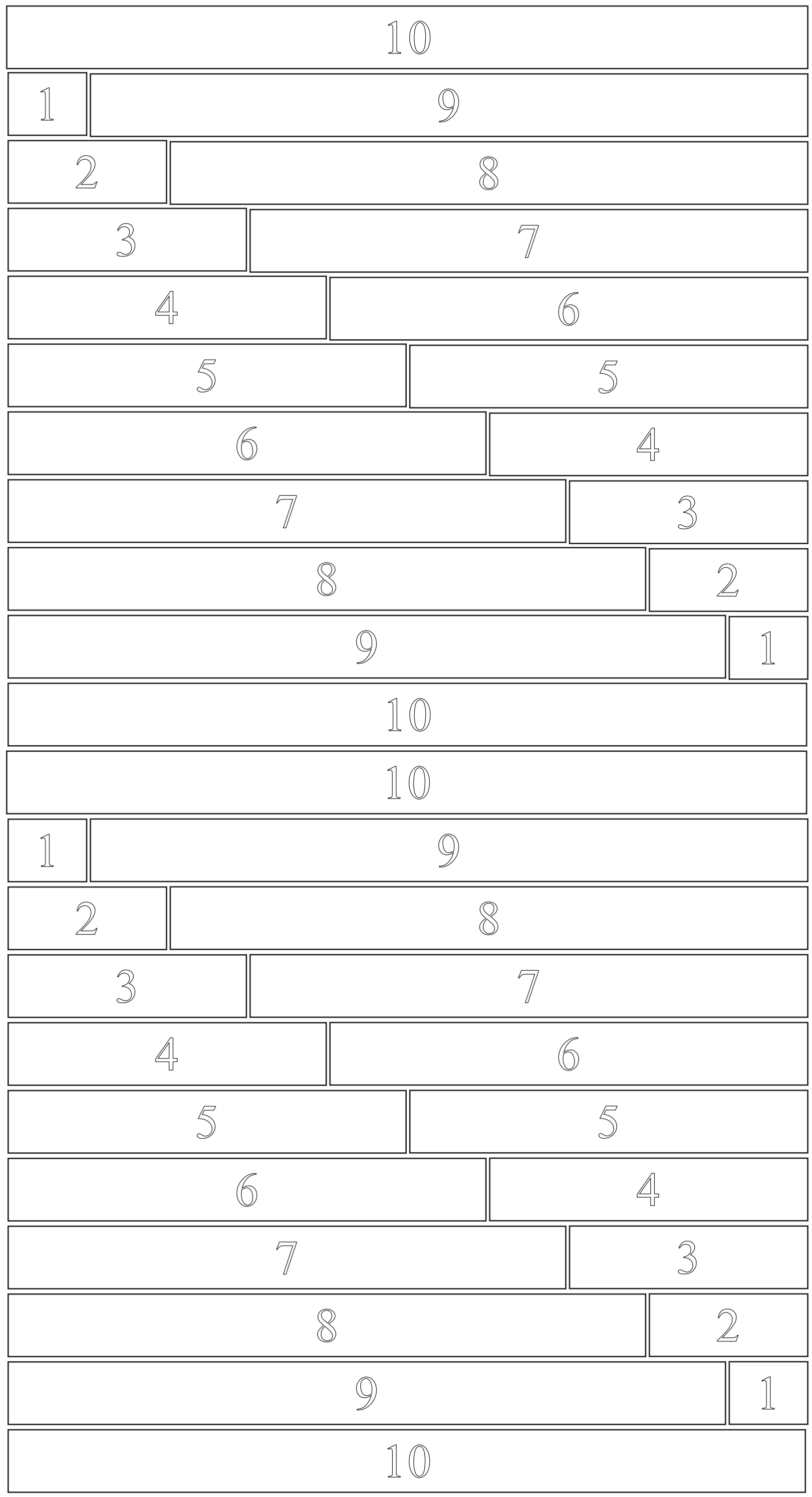
8s — all

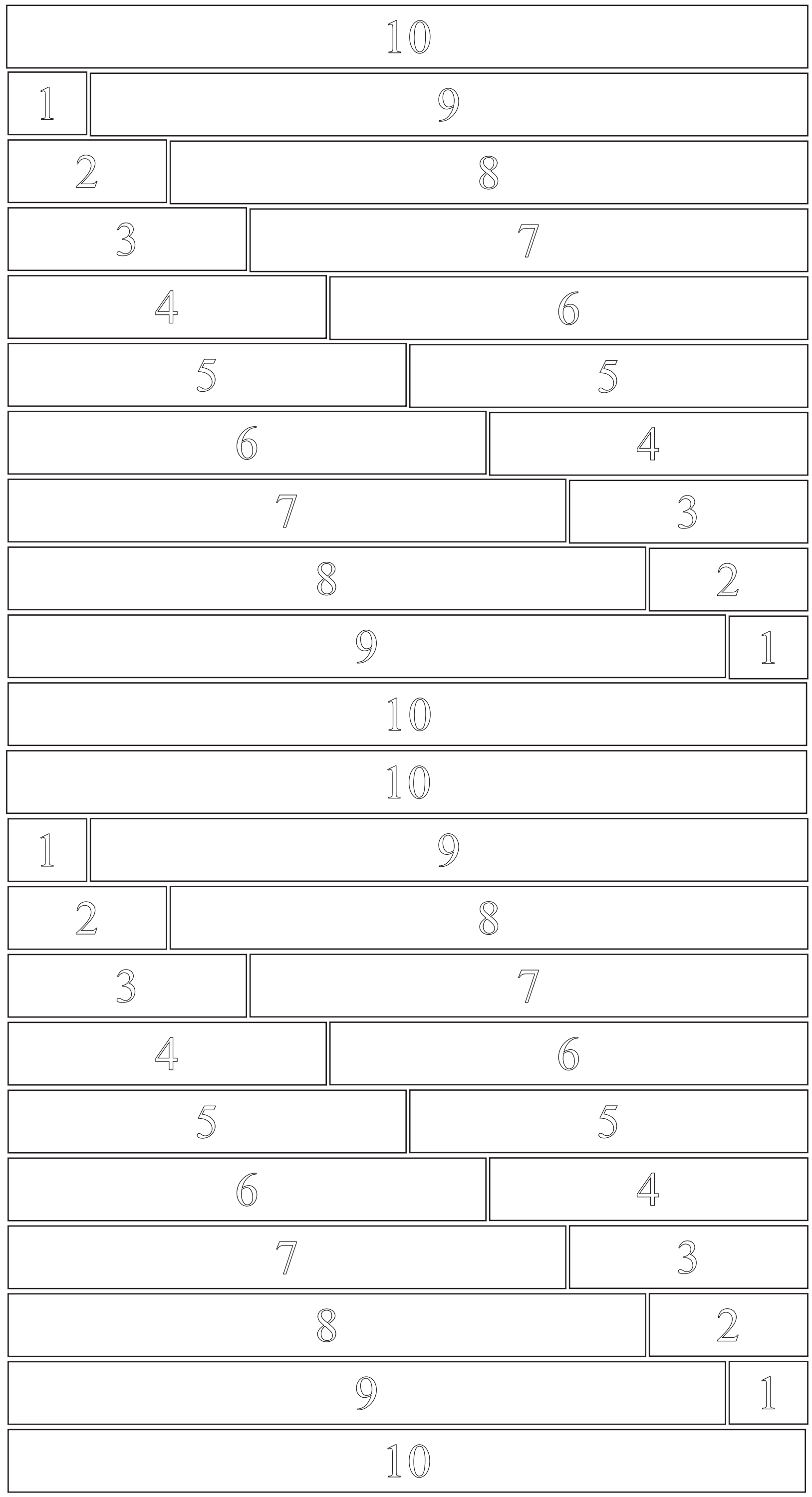
The answers to all these equations will be even

1. 8 x 7 = ______
2. 8 x 1 = ______
3. 8 x 3 = ______
4. 8 x 6 = ______
5. 5 x 8 = ______
6. 0 x 8 = ______
7. 8 x 2 = ______
8. 4 x 8 = ______
9. 7 x 8 = ______
10. 9 x 8 = ______
11. 3 x 8 = ______
12. 6 x 8 = ______
13. 8 x 9 = ______
14. 8 x 10 = ______
15. 8 x 8 = ______

Times Tables Test — *all of them!*

1. 7 x 3 = ______
2. 9 x 6 = ______
3. 2 x 3 = ______
4. 0 x 873 = ______
5. 8 x 2 = ______
6. 8 x 6 = ______
7. 10 x 0 = ______
8. 9 x 3 = ______
9. 4 x 2 = ______
10. 0 x 3 = ______
11. 8 x 8 = ______
12. 8 x 3 = ______
13. 4 x 7 = ______
14. 10 x 4 = ______
15. 5 x 7 = ______
16. 9 x 5 = ______
17. 9 x 1 = ______
18. 2 x 7 = ______
19. 4 x 8 = ______
20. 1 x 5 = ______
21. 7 x 6 = ______
22. 8 x 10 = ______
23. 9 x 2 = ______
24. 3 x 5 = ______
25. 6 x 6 = ______
26. 6 x 2 = ______
27. 10 x 3 = ______
28. 1 x 4 = ______
29. 7 x 8 = ______
30. 9 x 4 = ______
31. 6 x 4 = ______
32. 9 x 7 = ______
33. 8 x 3 = ______
34. 3 x 1 = ______
35. 6 x 5 = ______
36. 6 x 8 = ______
37. 0 x 0 = ______
38. 1 x 1 = ______
39. 2 x 2 = ______
40. 3 x 3 = ______
41. 4 x 4 = ______
42. 5 x 5 = ______
43. 6 x 6 = ______
44. 7 x 7 = ______
45. 8 x 8 = ______
46. 9 x 9 = ______
47. 3 x 6 = ______
48. 4 x 5 = ______
49. 9 x 8 = ______
50. 3 x 4 = ______


10
1 9
2 8
3 7
4 6
5 5
6 4
7 3
8 2
9 1
10
10
1 9
2 8
3 7
4 6
5 5
6 4
7 3
8 2
9 1
10


10
1 9
2 8
3 7
4 6
5 5
6 4
7 3
8 2
9 1
10
10
1 9
2 8
3 7
4 6
5 5
6 4
7 3
8 2
9 1
10

2 x 1	✿✿	2
2 x 2	✿✿ ✿✿	4
2 X 3	✿✿ ✿✿ ✿✿	6
2 x 4	✿✿ ✿✿ ✿✿ ✿✿	8
2 x 5	✿✿ ✿✿ ✿✿ ✿✿ ✿✿	10
2 x 6	✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿	12
2 x 7	✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿	14
2 x 8	✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿	16
2 x 9	✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿	18
2 x 10	✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿ ✿✿	20