

The ULTIMATE Guide to Multiplication Tips and Tricks!

ALL NUMBERS: If you swap your factors, the answer is the same!
 $4 \times 9 = 36$ is the same as $9 \times 4 = 36$! This is the most important rule! It cuts your facts in half!

1's: One multiplied by any number is simply the other number!
Take the one out of the problem and you have the answer. For example, $1 \times 5 = 5$, $1 \times 12 = 12$, and so on!

2's: To multiply by two, just add the number to itself! For example, $2 \times 9 = 9 + 9$!

3's: Try to remember when we sang the *Schoolhouse Rock* song, "Three is a Magic Number"! The chorus is the most important part: 3-6-9, 12-15-18, 21-24-27, 30!

4's: Double, double! If you know how to double a number, this one is easy. Simply double a number and then double it again! For 4×7 , multiply 2×7 to get 14. Then double it again: $2 \times 14 = 28$!

5's: If we multiply five by an even number, the ones digit will be 0. If the number is odd, the ones digit will be 5.

6's: If you multiply six by an even number, it will end in the same digit. Example: $6 \times 2 = 12$, $6 \times 4 = 24$, $6 \times 6 = 36$, $6 \times 8 = 48$, etc.

7's: Try singing the multiples of seven to the tune of "Are You Sleeping?" It goes like this:

Seven, fourteen,
twenty-one, twenty-eight,
thirty-five, forty-two,
forty-nine and fifty-six
sixty-three and seventy
Counting by sevens,
Counting by sevens!

8's: Double your fours! For 8×7 , multiply 4×7 to get 28. Then double it again: $2 \times 28 = 56!$

9's: The nines have many tricks. First, when you multiply a single-digit number times nine:

- The tens digit is one less than the original number.
- The tens digit plus the ones digit equals nine!

$2 \times 9 = 18$	$1 + 8 = 9$
$3 \times 9 = 27$	$2 + 7 = 9$
$4 \times 9 = 36$	$3 + 6 = 9$
$5 \times 9 = 45$	$4 + 5 = 9$
$6 \times 9 = 54$	$5 + 4 = 9$
$7 \times 9 = 63$	$6 + 3 = 9$
$8 \times 9 = 72$	$7 + 2 = 9$
$9 \times 9 = 81$	$8 + 1 = 9$

Second, you can learn the nines finger trick!

1. Hold your hands in front of you with your fingers spread out and the back of your hands facing you.

2. For 9×3 , bend your third finger down starting with your left pinkie. (9×4 would be the fourth finger, etc.)

3. Count the number of fingers before and after your bent finger. For 9×3 , you have 2 fingers in front of the bent finger and 7 after the bent finger.

4. The answer must be 27!

Third, remember the story of the boy and his timed test. He didn't know his answers, so he just started to write 0-9 in order from top to bottom. He still had time left over, so he wrote the numbers 0-9 again, but this time he started at the bottom and wrote up. He got an A on his test, because he answers ended up like this: 09, 18, 27, 36, 45, 54, 63, 72, 81, 90!

10's: The easiest number to multiply by is 10. Just add 0.

$3 \times 10 = 30$. $140 \times 10 = 1400$. Move each digit once to the left. Fill the last place with a 0.

11's: For digits 1-10, each number is just duplicated. Multiply 11 by 3 to get 33, multiply 11 by 4 to get 44, etc.

For double-digits 11 and above, separate the number you are multiplying by, then add the two opposing digits together and place it in the middle. For example, to multiply 11 by 18, jot down 1 and 8 with a space between: 1_8. Add the 8 and the 1 and put that number in the middle: 198!

12's: $12 \times __ = (10 \times __) + (2 \times __)$. For example, 12×6 is the same as $(10 \times 6) + (2 \times 6)$. 10×6 is 60 and 2×6 is 12. Add them together: $60 + 12 = 72$. $12 \times 6 = 72$!

ALL NUMBERS: Here's another finger trick! This works for all digits 6 - 10! Hold your hands up in front of you, palms forward.

Your thumbs are each a "6",
Your pointer fingers are each a "7"
Middle fingers are each an "8"
Ring fingers are each a "9"
Pinky fingers are each a "10"

On each hand, hold down the finger of each factor and all fingers/thumbs before it. For 7×8 , hold down the pointer finger and thumb of your left hand and the middle finger, pointer finger, and thumb of your right hand. For all the fingers/thumbs held down, add ten. In this case, you have a total of five fingers/thumbs held down. Therefore, you have fifty total. As for the fingers still straight, multiply each hand together. On your left hand, you have three fingers standing, and on your right, you have two fingers standing. $3 \times 2 = 6$. Add together the answers from your fingers/thumbs held down and your straight fingers. $50 + 6 = 56$. $8 \times 7 = 56$! Crazy!