

## Math Tips for Families - February 2025

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Using the Box Method for Multiplication:

Let's start by multiplying  $14 \times 27$ "

The standard algorithm shows us:

	2			
	1	4		← multiplicand
x	2	7		← multiplier
1	9	8	← $7 \times 14$	
2	8	0	← $20 \times 14$	
3	7	8		← product

So that  $14 \times 27 = 378$

We can show the same calculation using the box method for multiplication.

For starters, we ask students to show us an understanding of place value by writing the multiplicand and multiplier in expanded form:

$$14 = 10 + 4 \qquad 27 = 20 + 7$$

We now set up our product box:

x	10	4
20		
7		

The “box” helps students see our distribution steps when multiplying by multi-digit numbers. The boxes above where students will calculate each product are the same size, but it’s not always true that the products we calculate will have the same magnitude. So, we can address magnitude by drawing our boxes to represent the sizes of our products, as we see below.

The magnitude of the number also gives us an argument for writing 27 on the longer side (the length) and 14 on the shorter side (the width) and helps reinforce the multiplication property that  $14 \times 27$  is the same product as  $27 \times 14$  ( $14 \times 27 = 27 \times 14$ ).

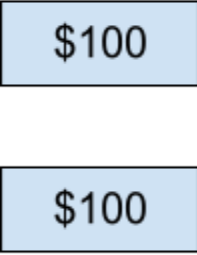
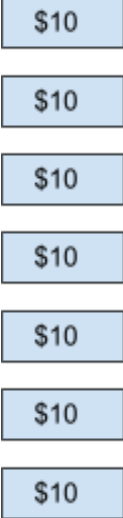


x	20	7
10	$20 \times 10 = 200$	$10 \times 7 = 70$
4	$4 \times 20 = 80$	$4 \times 7 = 28$

We can also see:  $200 + 80 = 280$       AND       $70 + 28 = 98$

Both sums appear above in our answer using the standard algorithm, which is a fantastic check and balance for helping our learners connect to different multiplication representations.

Finally, we calculated the sum  $280 + 98 = 378$ , which is the same answer we got from using the standard algorithm for multiplication.

As an extension, we can also build visual extensions using manipulatives such as base ten blocks or money to represent what’s in each box:

x	20	7
10		
4		

In this case, we used \$100, \$5, \$10 bills and \$2 coins to show my number for \$378.00. The box method also provides an excellent visual aid for helping our students learn measurement concepts like perimeter and area.