

# Multiplying in Columns, the Standard Way

The standard algorithm of multiplication is based on the principle that you already know: **multiplying in parts** (partial products): simply multiply ones and tens separately, and add.

However, in the standard way the *adding* is done at the same time as multiplying. The calculation looks more compact and takes less space than the “easy way to multiply” you have learned.

The standard way to multiply	“The easy way”
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <math display="block">\begin{array}{r} \overset{1}{6} 3 \\ \times 4 \\ \hline \end{array}</math> </div> <div style="text-align: center;"> <math display="block">\begin{array}{r} \overset{1}{6} 3 \\ \times 4 \\ \hline 252 \end{array}</math> </div> </div> <p>Multiply the ones: <math>4 \times 3 = 12</math></p> <p>Place 2 in the ones place, but write the tens digit (1) above the tens column as a little memory note. You are <i>regrouping</i> (or carrying).</p> <p>Then multiply the tens, <b>adding</b> the 1 ten that was regrouped.</p> <p style="text-align: center;"><math>4 \times 6 + 1 = 25</math></p> <p>Write 25 in front of the 2. <b>Note</b> that 25 tens means 250!</p>	$\begin{array}{r} 63 \\ \times 4 \\ \hline 12 \\ + 240 \\ \hline 252 \end{array}$ <p>In the “easy way,” we multiply in parts, and the adding is done separately.</p>
The standard way to multiply	“The easy way”
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <math display="block">\begin{array}{r} \overset{3}{7} 5 \\ \times 7 \\ \hline \end{array}</math> </div> <div style="text-align: center;"> <math display="block">\begin{array}{r} \overset{3}{7} 5 \\ \times 7 \\ \hline 525 \end{array}</math> </div> </div> <p>Multiply the ones: <math>7 \times 5 = 35</math> Regroup the 3 tens.</p> <p>Multiply &amp; add the tens: <math>7 \times 7 + 3 = 52</math></p>	$\begin{array}{r} 75 \\ \times 7 \\ \hline 35 \\ + 490 \\ \hline 525 \end{array}$

1. Multiply using both methods: the standard one and the easy one.

<p>a.</p> <table style="border-collapse: collapse; margin-bottom: 10px;"> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px; text-align: center;">5</td><td style="width: 20px; height: 20px; text-align: center;">3</td></tr> <tr><td style="width: 20px; height: 20px; text-align: center;">x</td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px; text-align: center;">8</td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> </table> <table style="border-collapse: collapse;"> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px; text-align: center;">5</td><td style="width: 20px; height: 20px; text-align: center;">3</td></tr> <tr><td style="width: 20px; height: 20px; text-align: center;">x</td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px; text-align: center;">8</td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> </table>					5	3	x		8								5	3	x		8										<p>b.</p> <table style="border-collapse: collapse; margin-bottom: 10px;"> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px; text-align: center;">8</td><td style="width: 20px; height: 20px; text-align: center;">8</td></tr> <tr><td style="width: 20px; height: 20px; text-align: center;">x</td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px; text-align: center;">3</td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> </table> <table style="border-collapse: collapse;"> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px; text-align: center;">8</td><td style="width: 20px; height: 20px; text-align: center;">8</td></tr> <tr><td style="width: 20px; height: 20px; text-align: center;">x</td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px; text-align: center;">3</td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> </table>					8	8	x		3								8	8	x		3									
	5	3																																																											
x		8																																																											
	5	3																																																											
x		8																																																											
	8	8																																																											
x		3																																																											
	8	8																																																											
x		3																																																											