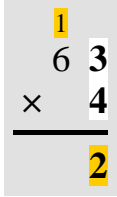
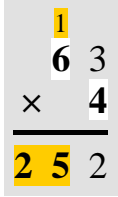
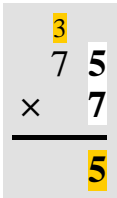



Multiplying in Columns, the Standard Way

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; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="width: 45%;"> <p>Multiply the ones: $4 \times 3 = 12$</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> </div> <div style="width: 45%;"> <p>Then multiply the tens, <i>adding</i> the 1 ten that was regrouped.</p> <p style="text-align: center;">$4 \times 6 + 1 = 25$</p> <p>Write 25 in front of the 2. Note that 25 tens means 250!</p> </div> </div>	<div style="text-align: center; margin-bottom: 20px;"> $\begin{array}{r} 63 \\ \times 4 \\ \hline 12 \\ + 240 \\ \hline 252 \end{array}$ </div> <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; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="width: 45%;"> <p>Multiply the ones: $7 \times 5 = 35$</p> <p>Regroup the 3 tens.</p> </div> <div style="width: 45%;"> <p>Multiply & add the tens:</p> <p style="text-align: center;">$7 \times 7 + 3 = 52$</p> </div> </div>	<div style="text-align: center; margin-bottom: 20px;"> $\begin{array}{r} 75 \\ \times 7 \\ \hline 35 \\ + 490 \\ \hline 525 \end{array}$ </div>

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

<p>a.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse; width: 100px;"> <tr><td></td><td></td><td></td></tr> <tr><td></td><td>5</td><td>3</td></tr> <tr><td>x</td><td></td><td>8</td></tr> <tr><td colspan="3" style="border-top: 1px solid black;"></td></tr> <tr><td></td><td></td><td></td></tr> </table> </div> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse; width: 100px;"> <tr><td></td><td></td><td></td></tr> <tr><td></td><td>5</td><td>3</td></tr> <tr><td>x</td><td></td><td>8</td></tr> <tr><td colspan="3" style="border-top: 1px solid black;"></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> </table> </div> </div>					5	3	x		8											5	3	x		8												
	5	3																																		
x		8																																		
	5	3																																		
x		8																																		

2. 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="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black; text-align: center;">7</td><td style="border: 1px solid black; text-align: center;">9</td></tr> <tr><td style="border: 1px solid black; text-align: center;">x</td><td style="border: 1px solid black;"></td><td style="border: 1px solid black; text-align: center;">3</td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> </table> <table style="border-collapse: collapse;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">7</td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">9</td></tr> <tr><td style="border: 1px solid black; text-align: center;">x</td><td style="border: 1px solid black;"></td><td style="border: 1px solid black; text-align: center;">3</td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> </table>					7	9	x		3								7	9	x		3										<p>b.</p> <table style="border-collapse: collapse; margin-bottom: 10px;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black; text-align: center;">1</td><td style="border: 1px solid black; text-align: center;">8</td></tr> <tr><td style="border: 1px solid black; text-align: center;">x</td><td style="border: 1px solid black;"></td><td style="border: 1px solid black; text-align: center;">5</td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> </table> <table style="border-collapse: collapse;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">1</td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">8</td></tr> <tr><td style="border: 1px solid black; text-align: center;">x</td><td style="border: 1px solid black;"></td><td style="border: 1px solid black; text-align: center;">5</td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> </table>					1	8	x		5								1	8	x		5									
	7	9																																																											
x		3																																																											
	7	9																																																											
x		3																																																											
	1	8																																																											
x		5																																																											
	1	8																																																											
x		5																																																											

3. Multiply. Be careful with the regrouping.

<p>a.</p> <table style="border-collapse: collapse;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">5</td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">1</td></tr> <tr><td style="border: 1px solid black; text-align: center;">x</td><td style="border: 1px solid black;"></td><td style="border: 1px solid black; text-align: center;">6</td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> </table>		5	1	x		6										<p>b.</p> <table style="border-collapse: collapse;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">1</td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">9</td></tr> <tr><td style="border: 1px solid black; text-align: center;">x</td><td style="border: 1px solid black;"></td><td style="border: 1px solid black; text-align: center;">3</td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> </table>		1	9	x		3										<p>c.</p> <table style="border-collapse: collapse;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">6</td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">2</td></tr> <tr><td style="border: 1px solid black; text-align: center;">x</td><td style="border: 1px solid black;"></td><td style="border: 1px solid black; text-align: center;">2</td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> </table>		6	2	x		2										<p>d.</p> <table style="border-collapse: collapse;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">4</td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">6</td></tr> <tr><td style="border: 1px solid black; text-align: center;">x</td><td style="border: 1px solid black;"></td><td style="border: 1px solid black; text-align: center;">7</td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> </table>		4	6	x		7									
	5	1																																																													
x		6																																																													
	1	9																																																													
x		3																																																													
	6	2																																																													
x		2																																																													
	4	6																																																													
x		7																																																													
<p>e.</p> <table style="border-collapse: collapse;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">6</td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">6</td></tr> <tr><td style="border: 1px solid black; text-align: center;">x</td><td style="border: 1px solid black;"></td><td style="border: 1px solid black; text-align: center;">6</td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> </table>		6	6	x		6										<p>f.</p> <table style="border-collapse: collapse;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">3</td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">9</td></tr> <tr><td style="border: 1px solid black; text-align: center;">x</td><td style="border: 1px solid black;"></td><td style="border: 1px solid black; text-align: center;">9</td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> </table>		3	9	x		9										<p>g.</p> <table style="border-collapse: collapse;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">8</td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">7</td></tr> <tr><td style="border: 1px solid black; text-align: center;">x</td><td style="border: 1px solid black;"></td><td style="border: 1px solid black; text-align: center;">3</td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> </table>		8	7	x		3										<p>h.</p> <table style="border-collapse: collapse;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">6</td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">7</td></tr> <tr><td style="border: 1px solid black; text-align: center;">x</td><td style="border: 1px solid black;"></td><td style="border: 1px solid black; text-align: center;">2</td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> </table>		6	7	x		2									
	6	6																																																													
x		6																																																													
	3	9																																																													
x		9																																																													
	8	7																																																													
x		3																																																													
	6	7																																																													
x		2																																																													
<p>i.</p> <table style="border-collapse: collapse;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">2</td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">0</td></tr> <tr><td style="border: 1px solid black; text-align: center;">x</td><td style="border: 1px solid black;"></td><td style="border: 1px solid black; text-align: center;">9</td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> </table>		2	0	x		9										<p>j.</p> <table style="border-collapse: collapse;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">5</td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">4</td></tr> <tr><td style="border: 1px solid black; text-align: center;">x</td><td style="border: 1px solid black;"></td><td style="border: 1px solid black; text-align: center;">8</td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> </table>		5	4	x		8										<p>k.</p> <table style="border-collapse: collapse;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">3</td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">4</td></tr> <tr><td style="border: 1px solid black; text-align: center;">x</td><td style="border: 1px solid black;"></td><td style="border: 1px solid black; text-align: center;">6</td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> </table>		3	4	x		6										<p>l.</p> <table style="border-collapse: collapse;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">4</td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">6</td></tr> <tr><td style="border: 1px solid black; text-align: center;">x</td><td style="border: 1px solid black;"></td><td style="border: 1px solid black; text-align: center;">2</td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> </table>		4	6	x		2									
	2	0																																																													
x		9																																																													
	5	4																																																													
x		8																																																													
	3	4																																																													
x		6																																																													
	4	6																																																													
x		2																																																													

4. Solve. Also, write number sentences (additions, subtractions, multiplications) on the empty lines.

<p>a. What is the cost of buying three chairs for \$48 each?</p> <p>_____</p> <p>And the cost for six chairs? _____</p>	<table style="border-collapse: collapse; margin: 0 auto;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black; text-align: center;">x</td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> </table>							x								
x																
<p>b. You earn \$77 a day. How many days do you need to work in order to have \$600 or more? Guess and check.</p> <p>_____</p> <p>_____</p>	<table style="border-collapse: collapse; margin: 0 auto;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black; text-align: center;">x</td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> <tr><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td><td style="border: 1px solid black;"></td></tr> </table>							x								
x																