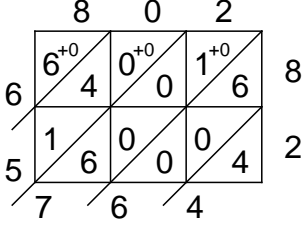


# Lattice multiplication with two- and three-digit numbers (2x3)

*Solutions are on page 2*

<p>(1) <math>802 \times 82 = 65,764</math></p> 	<p>(2) <math>463 \times 23 =</math></p>	<p>(3) <math>324 \times 51 =</math></p>
<p>(4) <math>511 \times 51 =</math></p>	<p>(5) <math>363 \times 48 =</math></p>	<p>(6) <math>107 \times 92 =</math></p>
<p>(7) <math>230 \times 94 =</math></p>	<p>(8) <math>487 \times 39 =</math></p>	<p>(9) <math>701 \times 25 =</math></p>
<p>(10) <math>878 \times 54 =</math></p>	<p>(11) <math>823 \times 63 =</math></p>	<p>(12) <math>916 \times 81 =</math></p>

# Lattice multiplication with two- and three-digit numbers (2x3)

Also see the Worksheets and Walkthroughs video: 'Multiplication--The Lattice Method'

<p>(1)</p> <p><math>802 \times 82 = 65,764</math></p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td></td><td style="text-align: center;">8</td><td style="text-align: center;">0</td><td style="text-align: center;">2</td><td></td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">6</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">6<sup>+0</sup> 4</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">0<sup>+0</sup> 0</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">1<sup>+0</sup> 6</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">8</td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">5</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">1 6</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">0 0</td><td style="padding: 5px; text-align: center;">0 4</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">2</td></tr> <tr><td></td><td style="text-align: center;">7</td><td style="text-align: center;">6</td><td style="text-align: center;">4</td><td></td></tr> </table>		8	0	2		6	6 <sup>+0</sup> 4	0 <sup>+0</sup> 0	1 <sup>+0</sup> 6	8	5	1 6	0 0	0 4	2		7	6	4		<p>(2)</p> <p><math>463 \times 23 = 10,649</math></p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td></td><td style="text-align: center;">4</td><td style="text-align: center;">6</td><td style="text-align: center;">3</td><td></td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">1</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">0<sup>+1</sup> 8</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">1<sup>+0</sup> 2</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">0<sup>+1</sup> 6</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">2</td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">0</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">1 2</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">1 8</td><td style="padding: 5px; text-align: center;">0 9</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">3</td></tr> <tr><td></td><td style="text-align: center;">6</td><td style="text-align: center;">4</td><td style="text-align: center;">9</td><td></td></tr> </table>		4	6	3		1	0 <sup>+1</sup> 8	1 <sup>+0</sup> 2	0 <sup>+1</sup> 6	2	0	1 2	1 8	0 9	3		6	4	9		<p>(3)</p> <p><math>324 \times 51 = 16,524</math></p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td></td><td style="text-align: center;">3</td><td style="text-align: center;">2</td><td style="text-align: center;">4</td><td></td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">1</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">1<sup>+0</sup> 5</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">1<sup>+0</sup> 0</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">2<sup>+0</sup> 0</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">5</td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">6</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">0 3</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">0 2</td><td style="padding: 5px; text-align: center;">0 4</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">1</td></tr> <tr><td></td><td style="text-align: center;">5</td><td style="text-align: center;">2</td><td style="text-align: center;">4</td><td></td></tr> </table>		3	2	4		1	1 <sup>+0</sup> 5	1 <sup>+0</sup> 0	2 <sup>+0</sup> 0	5	6	0 3	0 2	0 4	1		5	2	4	
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<p>(4)</p> <p><math>511 \times 51 = 26,061</math></p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td></td><td style="text-align: center;">5</td><td style="text-align: center;">1</td><td style="text-align: center;">1</td><td></td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">2</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">2<sup>+0</sup> 5</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">0<sup>+1</sup> 5</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">0<sup>+0</sup> 5</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">5</td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">6</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">0 5</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">0 1</td><td style="padding: 5px; text-align: center;">0 1</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">1</td></tr> <tr><td></td><td style="text-align: center;">0</td><td style="text-align: center;">6</td><td style="text-align: center;">1</td><td></td></tr> </table>		5	1	1		2	2 <sup>+0</sup> 5	0 <sup>+1</sup> 5	0 <sup>+0</sup> 5	5	6	0 5	0 1	0 1	1		0	6	1		<p>(5)</p> <p><math>363 \times 48 = 17,424</math></p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td></td><td style="text-align: center;">3</td><td style="text-align: center;">6</td><td style="text-align: center;">3</td><td></td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">1</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">1<sup>+0</sup> 2</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">2<sup>+1</sup> 4</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">1<sup>+1</sup> 2</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">4</td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">7</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">2 4</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">4 8</td><td style="padding: 5px; text-align: center;">2 4</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">8</td></tr> <tr><td></td><td style="text-align: center;">4</td><td style="text-align: center;">2</td><td style="text-align: center;">4</td><td></td></tr> </table>		3	6	3		1	1 <sup>+0</sup> 2	2 <sup>+1</sup> 4	1 <sup>+1</sup> 2	4	7	2 4	4 8	2 4	8		4	2	4		<p>(6)</p> <p><math>107 \times 92 = 9,844</math></p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td></td><td style="text-align: center;">1</td><td style="text-align: center;">0</td><td style="text-align: center;">7</td><td></td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">0</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">0<sup>+0</sup> 9</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">0<sup>+0</sup> 0</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">6<sup>+0</sup> 3</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">9</td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">9</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">0 2</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">0 0</td><td style="padding: 5px; text-align: center;">1 4</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">2</td></tr> <tr><td></td><td style="text-align: center;">8</td><td style="text-align: center;">4</td><td style="text-align: center;">4</td><td></td></tr> </table>		1	0	7		0	0 <sup>+0</sup> 9	0 <sup>+0</sup> 0	6 <sup>+0</sup> 3	9	9	0 2	0 0	1 4	2		8	4	4	
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<p>(7)</p> <p><math>230 \times 94 = 21,620</math></p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td></td><td style="text-align: center;">2</td><td style="text-align: center;">3</td><td style="text-align: center;">0</td><td></td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">2</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">1<sup>+1</sup> 8</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">2<sup>+1</sup> 7</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">0<sup>+0</sup> 0</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">9</td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">1</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">0 8</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">1 2</td><td style="padding: 5px; text-align: center;">0 0</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">4</td></tr> <tr><td></td><td style="text-align: center;">6</td><td style="text-align: center;">2</td><td style="text-align: center;">0</td><td></td></tr> </table>		2	3	0		2	1 <sup>+1</sup> 8	2 <sup>+1</sup> 7	0 <sup>+0</sup> 0	9	1	0 8	1 2	0 0	4		6	2	0		<p>(8)</p> <p><math>487 \times 39 = 18,993</math></p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td></td><td style="text-align: center;">4</td><td style="text-align: center;">8</td><td style="text-align: center;">7</td><td></td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">1</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">1<sup>+0</sup> 2</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">2<sup>+1</sup> 4</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">2<sup>+0</sup> 1</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">3</td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">8</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">3 6</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">7 2</td><td style="padding: 5px; text-align: center;">6 3</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">9</td></tr> <tr><td></td><td style="text-align: center;">9</td><td style="text-align: center;">9</td><td style="text-align: center;">3</td><td></td></tr> </table>		4	8	7		1	1 <sup>+0</sup> 2	2 <sup>+1</sup> 4	2 <sup>+0</sup> 1	3	8	3 6	7 2	6 3	9		9	9	3		<p>(9)</p> <p><math>701 \times 25 = 17,525</math></p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td></td><td style="text-align: center;">7</td><td style="text-align: center;">0</td><td style="text-align: center;">1</td><td></td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">1</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">1<sup>+0</sup> 4</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">0<sup>+0</sup> 0</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">0<sup>+0</sup> 2</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">2</td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">7</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">3 5</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">0 0</td><td style="padding: 5px; text-align: center;">0 5</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">5</td></tr> <tr><td></td><td style="text-align: center;">5</td><td style="text-align: center;">2</td><td style="text-align: center;">5</td><td></td></tr> </table>		7	0	1		1	1 <sup>+0</sup> 4	0 <sup>+0</sup> 0	0 <sup>+0</sup> 2	2	7	3 5	0 0	0 5	5		5	2	5	
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<p>(10)</p> <p><math>878 \times 54 = 47,412</math></p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td></td><td style="text-align: center;">8</td><td style="text-align: center;">7</td><td style="text-align: center;">8</td><td></td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">4</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">4<sup>+0</sup> 0</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">3<sup>+1</sup> 5</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">4<sup>+1</sup> 0</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">5</td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">7</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">3 2</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">2 8</td><td style="padding: 5px; text-align: center;">3 2</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">4</td></tr> <tr><td></td><td style="text-align: center;">4</td><td style="text-align: center;">1</td><td style="text-align: center;">2</td><td></td></tr> </table>		8	7	8		4	4 <sup>+0</sup> 0	3 <sup>+1</sup> 5	4 <sup>+1</sup> 0	5	7	3 2	2 8	3 2	4		4	1	2		<p>(11)</p> <p><math>823 \times 63 = 51,849</math></p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td></td><td style="text-align: center;">8</td><td style="text-align: center;">2</td><td style="text-align: center;">3</td><td></td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">5</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">4<sup>+1</sup> 8</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">1<sup>+0</sup> 2</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">1<sup>+1</sup> 8</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">6</td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">1</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">2 4</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">0 6</td><td style="padding: 5px; text-align: center;">0 9</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">3</td></tr> <tr><td></td><td style="text-align: center;">8</td><td style="text-align: center;">4</td><td style="text-align: center;">9</td><td></td></tr> </table>		8	2	3		5	4 <sup>+1</sup> 8	1 <sup>+0</sup> 2	1 <sup>+1</sup> 8	6	1	2 4	0 6	0 9	3		8	4	9		<p>(12)</p> <p><math>916 \times 81 = 74,196</math></p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td></td><td style="text-align: center;">9</td><td style="text-align: center;">1</td><td style="text-align: center;">6</td><td></td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">7</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">7<sup>+0</sup> 2</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">0<sup>+2</sup> 8</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">4<sup>+0</sup> 8</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">8</td></tr> <tr><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">4</td><td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; text-align: center;">0 9</td><td style="border-bottom: 1px solid black; padding: 5px; text-align: center;">0 1</td><td style="padding: 5px; text-align: center;">0 6</td><td style="border-left: 1px solid black; padding: 5px; text-align: center;">1</td></tr> <tr><td></td><td style="text-align: center;">1</td><td style="text-align: center;">9</td><td style="text-align: center;">6</td><td></td></tr> </table>		9	1	6		7	7 <sup>+0</sup> 2	0 <sup>+2</sup> 8	4 <sup>+0</sup> 8	8	4	0 9	0 1	0 6	1		1	9	6	
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7	7 <sup>+0</sup> 2	0 <sup>+2</sup> 8	4 <sup>+0</sup> 8	8																																																										
4	0 9	0 1	0 6	1																																																										
	1	9	6																																																											