

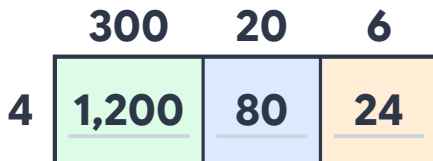
Multi-Digit Multiplication

Split the big number by place value. Multiply each part.

Multiply each part. Add the parts to find the product.

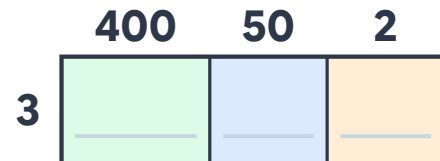
Example

4×326



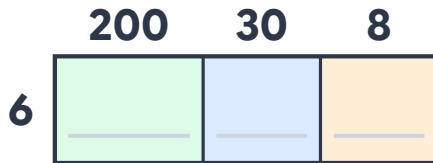
$4 \times 326 = 1,304$

$1. \quad 3 \times 452$



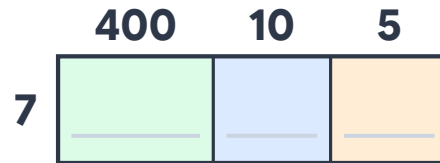
$3 \times 452 = \underline{\hspace{2cm}}$

$2. \quad 6 \times 238$



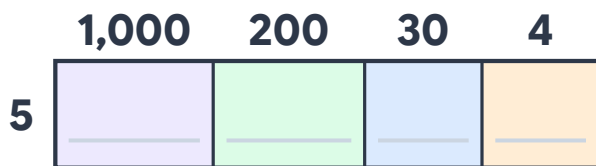
$6 \times 238 = \underline{\hspace{2cm}}$

$3. \quad 7 \times 415$



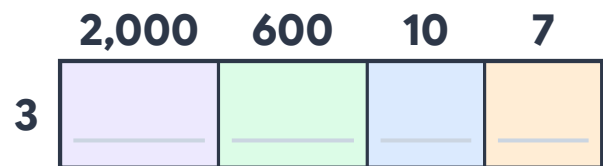
$7 \times 415 = \underline{\hspace{2cm}}$

$4. \quad 5 \times 1,234$



$5 \times 1,234 = \underline{\hspace{2cm}}$

$5. \quad 3 \times 2,617$



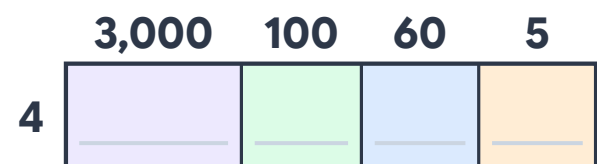
$3 \times 2,617 = \underline{\hspace{2cm}}$

$6. \quad 8 \times 1,352$



$8 \times 1,352 = \underline{\hspace{2cm}}$

$7. \quad 4 \times 3,165$



$4 \times 3,165 = \underline{\hspace{2cm}}$

Multi-Digit Multiplication

Multiply the tens and ones in each number. Then add.

Fill in the area model. Add the four parts.

Example

47×23

	40	7	
20	800	140	
3	120	21	

800

140

120

21

+

1,081

1.

15×15

	10	5	
10			
5			

+

2.

36×24

	30	6	
20			
4			

+

3.

58×42

	50	8	
40			
2			

+

Write the four partial products in a column. Then add.

Example

		3	4
$\times$		2	6
		2	4
	1	8	0
		8	0
+	6	0	0
	8	8	4

(6×4)

(6×30)

(20×4)

(20×30)

4.

		6	7
$\times$		4	5
+			

(5×7)

(5×60)

(40×7)

(40×60)

5.

		7	3
$\times$		5	8
+			

(8×3)

(8×70)

(50×3)

(50×70)

Multi-Digit Multiplication

Multiply by the ones, then by the tens. Then add the two rows.

Multiply. Write regrouped digits in the small boxes above.

Example

			1	
			4	
		4	6	
×		2	7	
	3	2	2	(46 × 7)
+	9	2	0	(46 × 20)
1	2	4	2	

1.

		3	8	
×		1	5	
				(38 × 5)
+				(38 × 10)

2.

		5	6	
×		3	4	
				(56 × 4)
+				(56 × 30)

3.

		7	4	
×		2	6	
				(74 × 6)
+				(74 × 20)

4.

		1	3	
×		1	3	
				(13 × 3)
+				(13 × 10)

5.

		8	5	
×		4	3	
				(85 × 3)
+				(85 × 40)

6.

		6	9	
×		5	7	
				(69 × 7)
+				(69 × 50)

7.

		9	3	
×		4	8	
				(93 × 8)
+				(93 × 40)

8.

		2	7	
×		6	4	
				(27 × 4)
+				(27 × 60)

Multi-Digit Multiplication

Multiply 3- and 4-digit numbers by 2-digit numbers.

Multiply. Remember the 0 in the second row.

Example

				1	
				2	1
			2	4	3
x				3	6
			1	4	5
			1	4	5
+			7	2	9
			8	7	4
			8	7	4

1.

			4	1	8
x				2	5
+					

2.

			5	7	6
x				4	3
+					

3.

			3	0	9
x				6	4
+					

4.

			7	2	5
x				3	8
+					

5.

			1	2	3
x				2	4
+					

6.

			2	5	0
x				3	6
+					

7.

			3	1	4
x				5	2
+					

8.

			4	6	2
x				7	3
+					

Multi-Digit Multiplication

Estimate first. Then multiply and check that it makes sense.

Round each factor to its greatest place. Is the answer reasonable?

Example $46 \times 23 = 230$

Estimate: 50 $\times$ 20 = 1,000

Reasonable? Yes **No**

1. $38 \times 52 = 1,976$

Estimate: _____ $\times$ _____ = _____

Reasonable? Yes No

2. $328 \times 24 = 78,720$

Estimate: _____ $\times$ _____ = _____

Reasonable? Yes No

3. $405 \times 18 = 7,290$

Estimate: _____ $\times$ _____ = _____

Reasonable? Yes No

Estimate first. Then solve. Show your work.

- 4.** A theater has 28 rows. Each row has 36 seats. How many seats are there?

Estimate: _____

_____ seats

- 5.** A farm packs 144 eggs in each crate. How many eggs are in 25 crates?

Estimate: _____

_____ eggs

- 6.** A store sells 2,150 bottles of water each week. How many does it sell in 18 weeks?

Estimate: _____

_____ bottles

- 7.** A school buys 32 boxes of crayons. Each box holds 64 crayons. How many crayons is that?

Estimate: _____

_____ crayons

Multi-Digit Multiplication

Split the big number by place value. Multiply each part.

Multiply each part. Add the parts to find the product.

Example

4×326

	300	20	6
4	1,200	80	24

$4 \times 326 = 1,304$

$1. \quad 3 \times 452$

	400	50	2
3			

$3 \times 452 =$

$2. \quad 6 \times 238$

	200	30	8
6			

$6 \times 238 =$

$3. \quad 7 \times 415$

	400	10	5
7			

$7 \times 415 =$

$4. \quad 5 \times 1,234$

	1,000	200	30	4
5				

$5 \times 1,234 =$

$5. \quad 3 \times 2,617$

	2,000	600	10	7
3				

$3 \times 2,617 =$

$6. \quad 8 \times 1,352$

	1,000	300	50	2
8				

$8 \times 1,352 =$

$7. \quad 4 \times 3,165$

	3,000	100	60	5
4				

$4 \times 3,165 =$

Multi-Digit Multiplication

Multiply the tens and ones in each number. Then add.

Fill in the area model. Add the four parts.

Example

47×23

	40	7	
20	800	140	
3	120	21	

+

$\begin{array}{r} 800 \\ 140 \\ 120 \\ 21 \\ \hline 1,081 \end{array}$

1.

15×15

	10	5	
10			
5			

+

2.

36×24

	30	6	
20			
4			

+

3.

58×42

	50	8	
40			
2			

+

Write the four partial products in a column. Then add.

Example

		3	4
×		2	6
		2	4
	1	8	0
		8	0
+		6	0
		6	0
	8	8	4

(6×4)

(6×30)

(20×4)

(20×30)

4.

		6	7
×		4	5
+			

(5×7)

(5×60)

(40×7)

(40×60)

5.

		7	3
×		5	8
+			

(8×3)

(8×70)

(50×3)

(50×70)

Multi-Digit Multiplication

Multiply by the ones, then by the tens. Then add the two rows.

Multiply. Write regrouped digits in the small boxes above.

Example

			1		
			4		
			4	6	
×			2	7	
			3	2	2
+			9	2	0
			1	2	4
			2		

(46 × 7)
(46 × 20)

1.

			3	8	
×			1	5	
+					

(38 × 5)
(38 × 10)

2.

			5	6	
×			3	4	
+					

(56 × 4)
(56 × 30)

3.

			7	4	
×			2	6	
+					

(74 × 6)
(74 × 20)

4.

			1	3	
×			1	3	
+					

(13 × 3)
(13 × 10)

5.

			8	5	
×			4	3	
+					

(85 × 3)
(85 × 40)

6.

			6	9	
×			5	7	
+					

(69 × 7)
(69 × 50)

7.

			9	3	
×			4	8	
+					

(93 × 8)
(93 × 40)

8.

			2	7	
×			6	4	
+					

(27 × 4)
(27 × 60)

Multi-Digit Multiplication

Multiply 3- and 4-digit numbers by 2-digit numbers.

Multiply. Remember the 0 in the second row.

Example

				1	
				2	1
				2	4
				3	6
x					
				1	4
				5	8
+				7	2
				8	7
				4	8

1.

				4	1
				8	
x					
				2	5
+					

2.

				5	7
				6	
x					
				4	3
+					

3.

				3	0
				9	
x					
				6	4
+					

4.

				7	2
				5	
x					
				3	8
+					

5.

				1	2
				3	6
x					
				2	4
+					

6.

				2	5
				0	7
x					
				3	6
+					

7.

				3	1
				4	8
x					
				5	2
+					

8.

				4	6
				2	9
x					
				7	3
+					

Multi-Digit Multiplication

Estimate first. Then multiply and check that it makes sense.

Round each factor to its greatest place. Is the answer reasonable?

Example $46 \times 23 = 230$

Estimate: 50 $\times$ 20 = 1,000

Reasonable? Yes **No**

1. $38 \times 52 = 1,976$

Estimate: _____ $\times$ _____ = _____

Reasonable? Yes No

2. $328 \times 24 = 78,720$

Estimate: _____ $\times$ _____ = _____

Reasonable? Yes No

3. $405 \times 18 = 7,290$

Estimate: _____ $\times$ _____ = _____

Reasonable? Yes No

Estimate first. Then solve. Show your work.

- 4.** A theater has 28 rows. Each row has 36 seats. How many seats are there?

Estimate: _____

_____ seats

- 5.** A farm packs 144 eggs in each crate. How many eggs are in 25 crates?

Estimate: _____

_____ eggs

- 6.** A store sells 2,150 bottles of water each week. How many does it sell in 18 weeks?

Estimate: _____

_____ bottles

- 7.** A school buys 32 boxes of crayons. Each box holds 64 crayons. How many crayons is that?

Estimate: _____

_____ crayons

Multi-Digit Multiplication

Split the big number by place value. Multiply each part.

Multiply each part. Add the parts to find the product.

Example

4×326

	300	20	6
4	<u>1,200</u>	<u>80</u>	<u>24</u>

$4 \times 326 = \underline{1,304}$

$1. \ 3 \times 452$

	400	50	2
3	<u>1,200</u>	<u>150</u>	<u>6</u>

$3 \times 452 = \underline{1,356}$

$2. \ 6 \times 238$

	200	30	8
6	<u>1,200</u>	<u>180</u>	<u>48</u>

$6 \times 238 = \underline{1,428}$

$3. \ 7 \times 415$

	400	10	5
7	<u>2,800</u>	<u>70</u>	<u>35</u>

$7 \times 415 = \underline{2,905}$

$4. \ 5 \times 1,234$

	1,000	200	30	4
5	<u>5,000</u>	<u>1,000</u>	<u>150</u>	<u>20</u>

$5 \times 1,234 = \underline{6,170}$

$5. \ 3 \times 2,617$

	2,000	600	10	7
3	<u>6,000</u>	<u>1,800</u>	<u>30</u>	<u>21</u>

$3 \times 2,617 = \underline{7,851}$

$6. \ 8 \times 1,352$

	1,000	300	50	2
8	<u>8,000</u>	<u>2,400</u>	<u>400</u>	<u>16</u>

$8 \times 1,352 = \underline{10,816}$

$7. \ 4 \times 3,165$

	3,000	100	60	5
4	<u>12,000</u>	<u>400</u>	<u>240</u>	<u>20</u>

$4 \times 3,165 = \underline{12,660}$

Multi-Digit Multiplication

Multiply the tens and ones in each number. Then add.

Fill in the area model. Add the four parts.

Example

47×23

	40	7	
20	800	140	
3	120	21	
			+
			1,081

1. 15×15

	10	5	
10	100	50	
5	50	25	
			+
			225

2. 36×24

	30	6	
20	600	120	
4	120	24	
			+
			864

3. 58×42

	50	8	
40	2,000	320	
2	100	16	
			+
			2,436

Write the four partial products in a column. Then add.

Example

		3	4	
×		2	6	
		2	4	(6 × 4)
	1	8	0	(6 × 30)
		8	0	(20 × 4)
+		6	0	(20 × 30)
	8	8	4	

4.

		6	7	
×		4	5	
		3	5	(5 × 7)
	3	0	0	(5 × 60)
	2	8	0	(40 × 7)
+	2	4	0	(40 × 60)
	3	0	1	5

5.

		7	3	
×		5	8	
		2	4	(8 × 3)
	5	6	0	(8 × 70)
	1	5	0	(50 × 3)
+	3	5	0	(50 × 70)
	4	2	3	4

Multi-Digit Multiplication

Multiply by the ones, then by the tens. Then add the two rows.

Multiply. Write regrouped digits in the small boxes above.

Example

			1	
			4	
		4	6	
×		2	7	
	3	2	2	(46 × 7)
+	9	2	0	(46 × 20)
1	2	4	2	

1.

			4	
		3	8	
×		1	5	
	1	9	0	(38 × 5)
+	3	8	0	(38 × 10)
	5	7	0	

2.

			1	
			2	
		5	6	
×		3	4	
	2	2	4	(56 × 4)
+	1	6	8	0 (56 × 30)
1	9	0	4	

3.

			2	
		7	4	
×		2	6	
	4	4	4	(74 × 6)
+	1	4	8	0 (74 × 20)
1	9	2	4	

4.

		1	3	
×		1	3	
	3	9		(13 × 3)
+	1	3	0	(13 × 10)
	1	6	9	

5.

			2	
			1	
		8	5	
×		4	3	
	2	5	5	(85 × 3)
+	3	4	0	0 (85 × 40)
3	6	5	5	

6.

			4	
			6	
		6	9	
×		5	7	
	4	8	3	(69 × 7)
+	3	4	5	0 (69 × 50)
3	9	3	3	

7.

			1	
			2	
		9	3	
×		4	8	
	7	4	4	(93 × 8)
+	3	7	2	0 (93 × 40)
4	4	6	4	

8.

			4	
			2	
		2	7	
×		6	4	
	1	0	8	(27 × 4)
+	1	6	2	0 (27 × 60)
1	7	2	8	

Multi-Digit Multiplication

Multiply 3- and 4-digit numbers by 2-digit numbers.

Multiply. Remember the 0 in the second row.

Example

				1		
				2	1	
				2	4	3
×					3	6
				1	4	5
				1	4	5
+				7	2	9
				8	7	4
				8	7	4

1.

					1	
					4	
				4	1	8
×					2	5
				2	0	9
				2	0	9
+				8	3	6
				1	0	4
				1	0	4

2.

					3	2
					2	1
				5	7	6
×					4	3
				1	7	2
				1	7	2
+				2	3	0
				2	4	7
				2	4	7

3.

					5	
					3	
				3	0	9
×					6	4
				1	2	3
				1	2	3
+				1	8	5
				1	9	7
				1	9	7

4.

					2	1
					4	
				7	2	5
×					3	8
				5	8	0
				5	8	0
+				2	1	7
				2	7	5
				2	7	5

5.

					1	2
					1	2
				1	2	3
×					2	4
				4	9	4
				4	9	4
+				2	4	7
				2	9	6
				2	9	6

6.

					1	2
					3	4
				2	5	0
×					3	6
				1	5	0
				1	5	0
+				7	5	2
				9	0	2
				9	0	2

7.

					2	4
					1	
				3	1	4
×					5	2
				6	2	9
				6	2	9
+				1	5	7
				1	6	3
				1	6	3

8.

					4	2	6
					1	2	
				4	6	2	9
×					7	3	
				1	3	8	7
				1	3	8	7
+				3	2	4	0
				3	3	7	9
				3	3	7	9

Multi-Digit Multiplication

Estimate first. Then multiply and check that it makes sense.

Round each factor to its greatest place. Is the answer reasonable?

Example

$$46 \times 23 = 230$$

Estimate: $50 \times 20 = 1,000$

Reasonable? Yes **No**

1. $38 \times 52 = 1,976$

Estimate: $40 \times 50 = 2,000$

Reasonable? **Yes** No

2. $328 \times 24 = 78,720$

Estimate: $300 \times 20 = 6,000$

Reasonable? Yes **No**

3. $405 \times 18 = 7,290$

Estimate: $400 \times 20 = 8,000$

Reasonable? **Yes** No

Estimate first. Then solve. Show your work.

4. A theater has 28 rows. Each row has 36 seats. How many seats are there?

Estimate: $30 \times 40 = 1,200$

1,008 seats

5. A farm packs 144 eggs in each crate. How many eggs are in 25 crates?

Estimate: $100 \times 30 = 3,000$

3,600 eggs

6. A store sells 2,150 bottles of water each week. How many does it sell in 18 weeks?

Estimate: $2,000 \times 20 = 40,000$

38,700 bottles

7. A school buys 32 boxes of crayons. Each box holds 64 crayons. How many crayons is that?

Estimate: $30 \times 60 = 1,800$

2,048 crayons