

Written Multiplication

Long Multiplication

EXAMPLE: What is 1243×24 ?

This looks tricky, but it's not.

You're multiplying by a **two-digit** number.

First, you need to **partition** this number: $24 = 20 + 4$.

Then work out 1243×20 and 1243×4 **separately**, and **add them together**.

Do a quick **estimation** before you start:
 $1243 \times 24 \approx 1000 \times 25 = 25\ 000$



STEP 1

	Th	H	T	U	
	1	2	4	3	
×			2	4	
<hr/>					
	4	9	7	2	

First find 1243×4 .
 $1243 \times 4 = 4972$
 Write the answer here as usual.

STEP 2

	Th	H	T	U	
	1	2	4	3	
×			2	4	
<hr/>					
	4	9	7	2	
	2	4	8	6	0

Now find 1246×20 and put the answer here.

STEP 3

	Th	H	T	U	
	1	2	4	3	
×			2	4	
<hr/>					
	4	9	7	2	
	2	4	8	6	0
<hr/>					
	2	9	8	3	2

Add to get the final answer.

We've put the **detail** for these steps below.

STEP 1: 1246×4

	Th	H	T	U	
	1	2	4	3	
×			2	4	
<hr/>					
			2		
	1				

$3 \times 4 = 12$
 So put 2 in the U column...
 ... and carry 10 to the T column.

	Th	H	T	U	
	1	2	4	3	
×			2	4	
<hr/>					
		7	2		
	1	1			

$40 \times 4 = 160$
 160 plus the carried 10 is 170 so put 7 in the T column.
 The 100 goes in the H column.

	Th	H	T	U	
	1	2	4	3	
×			2	4	
<hr/>					
		9	7	2	
	1	2			

$200 \times 4 = 800$
 800 plus the carried 100 is 900 so put 9 in the H column.

	Th	H	T	U	
	1	2	4	3	
×			2	4	
<hr/>					
		4	9	7	2
	1	2			

$1000 \times 4 = 4000$

STEP 2: 1246×20

	Th	H	T	U	
	1	2	4	3	
×			2	4	
<hr/>					
		4	9	7	2
	6	0			

Put 60 in the correct columns.
 $3 \times 20 = 60$

	Th	H	T	U	
	1	2	4	3	
×			2	4	
<hr/>					
		4	9	7	2
	8	6	0		

$40 \times 20 = 800$

	Th	H	T	U	
	1	2	4	3	
×			2	4	
<hr/>					
		4	9	7	2
	4	8	6	0	

$200 \times 20 = 4000$

	Th	H	T	U	
	1	2	4	3	
×			2	4	
<hr/>					
		4	9	7	2
	2	4	8	6	0

$1000 \times 20 = 20\ 000$

"I can multiply a four-digit number by a two-digit number."

