# Multiplication of 4-digit number by a 3-digit number

## Multiplication of 4-digit number by a 3-digit number

This means multiplying a number with four digits (like 1234) by a number with three digits (like 123). It is done using the long multiplication method step by step.

## Steps to Multiply

**Step 1:** Write the numbers one below the other with proper place values

**Step 2:** Multiply the 4-digit number by the ones digit of the 3-digit number

**Step 3:** Multiply the 4-digit number by the tens digit of the 3-digit number and place the result starting from the tens place

**Step 4:** Multiply the 4-digit number by the hundreds digit of the 3-digit number and place the result starting from the hundreds place

**Step 5:** Add all the partial products to get the final answer

## Properties Used

**Commutative Property:** $a \times b = b \times a$

**Distributive Property:** $a \times (b + c + d) = a \times b + a \times c + a \times d$

**Zero Property:** any number $\times 0 = 0$

**Multiplicative Identity:** any number $\times 1 =$ same number

**Example 1:**

**Question:** Multiply 1234 by 213

**Solution:**

   **Step 1:** $1234 \times 3 = 3702$

   **Step 2:** $1234 \times 10 = 12340$

   **Step 3:** $1234 \times 200 = 246800$

   **Now add:** $3702 + 12340 + 246800 = 262842$

   **Answer:** $1234 \times 213 = 262842$

**Example 2:**

**Question:** Multiply $1\frac{1}{2}$ by 123

**Solution:**

Convert $1\frac{1}{2}$ to improper fraction = $\frac{3}{2}$

Now multiply $\frac{3}{2} \times 123 = \frac{3 \times 123}{2} = \frac{369}{2} = 184\frac{1}{12}$

**Answer:** $1\frac{1}{2} \times 123 = 184\frac{1}{2}$

## Summary Points

- To multiply a 4-digit number by a 3-digit number, break the 3-digit number into ones, tens, and hundreds
- Multiply each part separately and then add the results
- Use place value properly while placing each product
- Use multiplication properties to simplify and understand the operation
- Fractions must be converted to improper form before multiplying with whole numbers