

Multiplying Whole Numbers

Suppose every student in your class planted 5 seeds in your school's garden. How many seeds were planted? You could repeatedly add 5 seeds plus 5 seeds until every student's seeds had been added, but this would be pretty time consuming. **Multiplication**, which simplifies addition, is the process of calculating the total of a number that is added together a specific number of times. For example, 3×4 means adding 3 together 4 times, or $3 + 3 + 3 + 3 = 12$. So $3 \times 4 = 12$. The answer to a multiplication problem is called the *product*.

PROCEDURE: To find the product of two whole numbers, align your numbers so that the ones digits are in the same column. Multiply each digit of the top number by the ones digit in the bottom number, carrying when necessary. Then multiply each digit in the top number by the tens in the bottom number, regrouping when necessary. Finally, add the partial products to find the final product.

SAMPLE PROBLEM: Find the product of 34 and 16.

Step 1: Align the numbers vertically. Multiply each digit in the top number by the ones digit in the bottom number. Carry when necessary.

$$\begin{array}{r} 34 \\ \times 16 \\ \hline 204 \end{array}$$

Step 2: Multiply each digit in the top number by the tens in the bottom number. Imagine adding a zero in the ones column as a place holder.

$$\begin{array}{r} 34 \\ \times 16 \\ \hline 204 \\ 340 \end{array}$$

Step 3: Add the partial products.

$$\begin{array}{r} 34 \\ \times 16 \\ \hline 204 \\ + 340 \\ \hline 544 \end{array}$$

The product is 544.

Practice Your Skills!

1. Multiply. Don't forget to show all your work.

2. A farm produces 864 bushels of corn per square kilometer. The farmer plants 127 km² of corn. How many bushels of corn will the farm produce?

3. A bee travels 147 m one way from its hive to the garden. If the bee makes 93 round trips between the hive and the garden, how far will it have traveled? Be careful!

