Multiplying Decimals

We multiply decimals just like we would whole numbers. The only thing that we need to know is where the decimal should be placed.

Example 1: 3.6 x 2.5

Step 1: Write each decimal as a whole number with the same amount of decimal places. Use zeros as placeholders when you need to. Then, all you have to do is multiply.

$$
\begin{array}{r}
36 \\
\times\ 25 \\
\hline
180 \\
+\underline{720} \\
900
\end{array}
$$

Step 2: Use front-end estimation to place the decimal point.

Since 3 x 2 = 6, we can assume that the decimal point should be placed between the 9 and the 0.

**Answer:** 3.6 x 2.5 = 9.00 or 9

Example 2: 2.54 x 4.8

Step 1:

$$
\begin{array}{r}
254 \\
X\ \ \underline{480} \\
000 \\
20320 \\
+\underline{101600} \\
121920
\end{array}
$$

Step 2: Since 2 x 4 = 8, we can assume that the decimal point should be placed between the 2 and the 1.

Answer: 2.54 x 4.8 = 12.192

Alternate Method for Placing the Decimal Point

2.54 has two decimal places. 4.80 also has two decimal places. Therefore, to find out where the decimal point is placed, count 2 + 2 = 4 decimal places **from right to left**.

$$
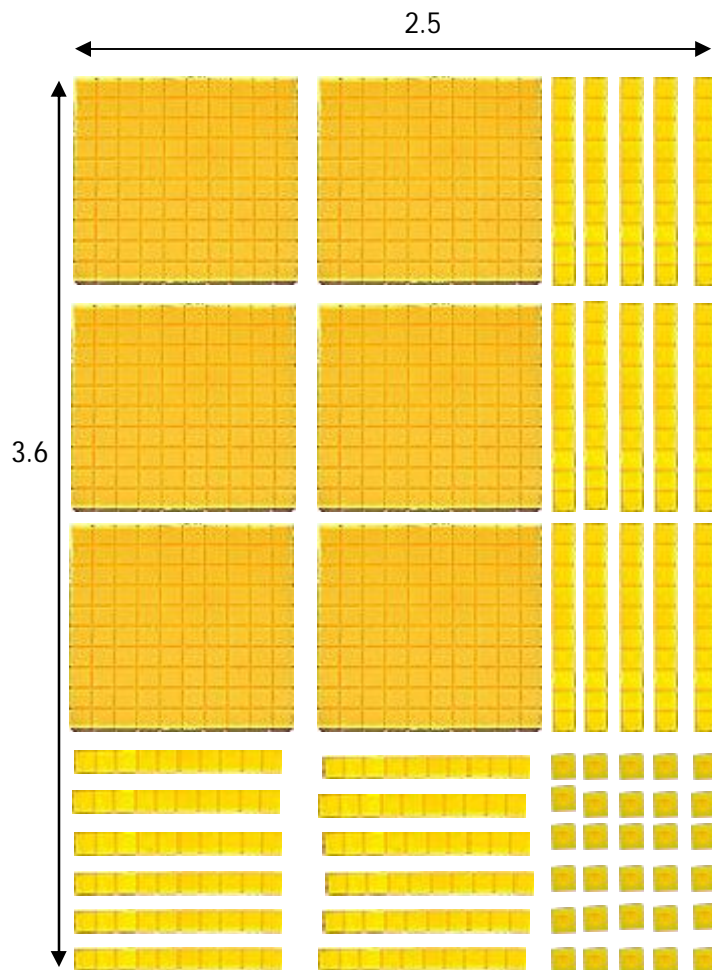1 \quad 2 \quad 1 \quad 9 \quad 2 \quad 0
$$
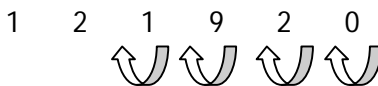
We can also use Base Ten Blocks to multiply decimals.

Let the **flat** represent **1**, the **rod** represent **0.1**, and the small **cube** represent **0.01**.

1	0.1	0.01
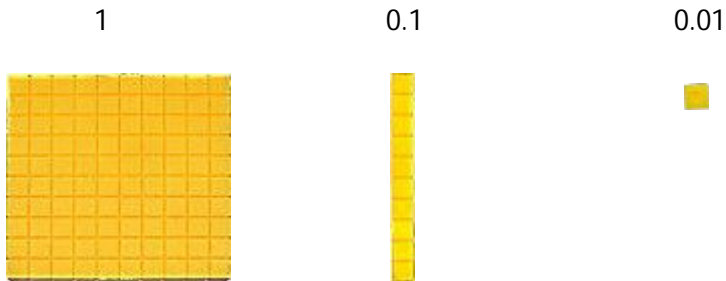
Let's look and see how **Example 1** would look if we used tiles to multiply the decimals instead:

Example 1: 3.6 x 2.5

There are:
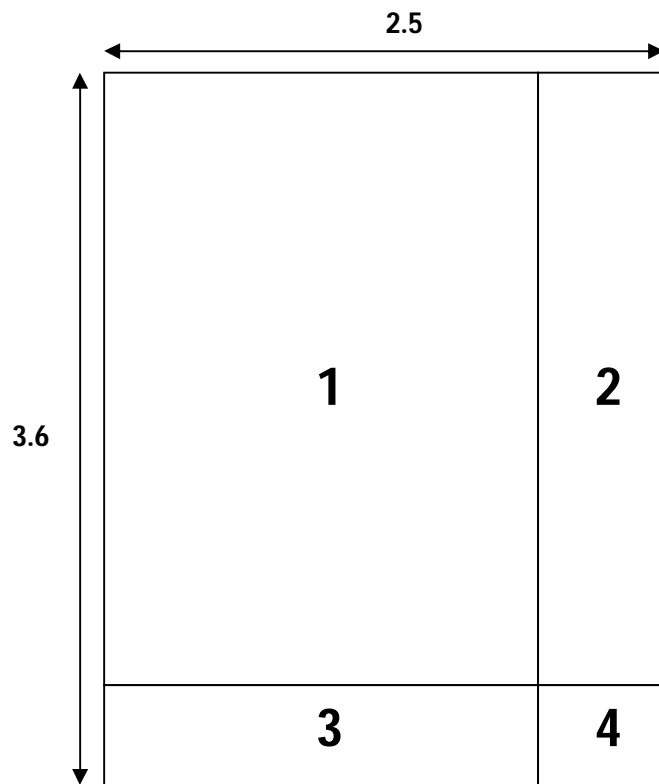
6 flats: 6 x 1 = 6

27 rods: 27 x 0.1 = 2.7

30 cubes: 30 x 0.01 = 0.3

The total area is the sum of

these sections: 6 + 2.7 + 0.3 = 9

Note: Base Ten Blocks limit us to answers

that have a maximum of 2 decimal places!

We can also use a rectangle model to find the same answer:

2.5

3.6

| 1 | 2 |
| 3 | 4 |

1: 3.0 x 2.0 = 6.0

2: 3.0 x 0.5 = 1.5

3: 2.0 x 0.6 = 1.2

4. 0.5 x 0.6 = 0.3

sum = 9