Decimals: Multiplication

Multiplying Decimals:

When multiplying decimals, multiply the decimals as if they were whole numbers. Count the number of decimal places in each of the numbers being multiplied. Place the decimal point in the product so that the number of decimal places in the product is the sum of the number of decimal places in the numbers being multiplied.

Example: TRY:

$$
\begin{array}{r}
39.3 \\
\times \quad 4.45 \\
\hline
1965 \\
1572 \\
1572 \quad \\
\hline
174.885
\end{array}
$$

$$
\begin{array}{r}
53.38 \\
\times \quad 6.884 \\
\hline
\end{array}
$$

A total of 3 decimal places are needed in this answer.

Multiplying by Powers of 10:

When multiplying decimals by powers of 10, move the decimal point in the original number to the right the same number of places as zeros in the powers-of-10 number.

Examples: 36.493 x 100 = 3649.3 (decimal moved 2 places to the right)
               36.493×10^2 = 3649.3

               .3942 x 1000 = 394.2   (decimal moved 3 places to the right)
               $.3942 \times 10^3$ = 394.2

               .057 x 100000 = 5700   (decimal moved 5 places to the right and zeros added)
               $.057 \times 10^5$ = 5700

               Notice how the number of places one moves the decimal to the right
                is the same as the exponent of the power-of-10 term used for multiplication.

TRY:

23.5804 x 100 4.59×10^4 $.0025 \times 10^7$