

# MULTIPLYING WITH DECIMALS

$$\begin{array}{r} 2.3 \\ \times 4.1 \\ \hline 23 \\ \phantom{2}920 \\ \hline 943 \end{array}$$

↓

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Multiply the first number (the multiplicand) by the farthest-right digit of the multiplier. Ignore the decimal points for now.

Multiply the first number (the multiplicand) by the second-farthest-right non-zero digit of the multiplier. Remember to put a zero as a place keeper, just like in multiplying whole numbers. Keep ignoring the decimal points.

Add up the numbers (the partial products you just calculated), still ignoring the decimal points

Count the total number of digits to the right of the decimal points in the two numbers you are multiplying (the multiplicand and multiplier).

Place the decimal point in your answer by counting that many digits from the right.

# DIVIDING WITH DECIMALS

$$\begin{array}{r}
 8.4 \overline{) 2.604} \\
 \downarrow \\
 \begin{array}{r}
 0.3 \\
 \hline
 84 \overline{) 26.04} \\
 \underline{252} \\
 \phantom{0}8
 \end{array} \\
 \downarrow \\
 \begin{array}{r}
 0.3 \\
 \hline
 8.4 \overline{) 2.604} \\
 \underline{252} \\
 \phantom{0}8
 \end{array} \\
 \downarrow \\
 \begin{array}{r}
 0.3 \\
 \hline
 84 \overline{) 26.04} \\
 \underline{-252} \\
 \phantom{0}84
 \end{array} \\
 \downarrow \\
 \begin{array}{r}
 0.31 \\
 \hline
 84 \overline{) 26.04} \\
 \underline{-252} \\
 \phantom{0}84 \\
 \underline{84} \\
 \phantom{0}0
 \end{array} \\
 \downarrow \\
 \begin{array}{r}
 0.31 \\
 \hline
 84 \overline{) 26.04} \\
 \underline{-252} \\
 \phantom{0}84 \\
 \underline{84} \\
 \phantom{0}0
 \end{array}
 \end{array}$$

Multiply the divisor (8.4) by a power of 10 in order to make it a whole number (in this case, multiply by 10). Multiply the dividend by the same power of ten. Put the decimal point in place in the quotient (the answer) directly above the new decimal point in the dividend.

Begin to divide part of the dividend (260) by the divisor (84). Multiply the first digit of the quotient (3) by the divisor (8.4) and write it under the beginning of the dividend (260).

Subtract the two numbers.

Carry the next digit in the dividend (4) down to the current part of the problem.

Divide the difference you just calculated (84) by the divisor (84). Write the answer below the 84.

Subtract the two numbers. If you have carried down all the digits in the dividend and the subtraction answer is zero, you are done. If not, keep carrying down zeros and keep dividing (until you get zero or have enough digits for your answer — and then round off the decimal).