

# Long Division with Decimals

It is very easy to use long division to divide a decimal by a whole number.

During the division process, divide **as if there were no decimal point**.

Then, simply put the decimal point in the quotient *in the same place* as it was in the dividend.

$$\begin{array}{r}
 05.93 \\
 7 \overline{) 41.51} \\
 \underline{-35} \phantom{0} \\
 65 \\
 \underline{-63} \\
 21 \\
 \underline{-21} \\
 0
 \end{array}$$

**Check:**

$$\begin{array}{r}
 5.93 \\
 \times \phantom{0} 7 \\
 \hline
 \end{array}$$

1. Divide. Check each division result with multiplication.

a.  $5 \overline{) 5.30}$

Check:

b.  $3 \overline{) 0.72}$

Check:

c.  $7 \overline{) 6.23}$

Check:

d.  $6 \overline{) 2.388}$

Check:

2. Divide. Check each division result with multiplication.

<p style="text-align: right; margin-right: 20px;">Check:</p> <p>a. <math>19 \overline{) 23.94}</math></p>	<p style="text-align: right; margin-right: 20px;">Check:</p> <p>b. <math>23 \overline{) 57.638}</math></p>
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3. a. Fill in the explanation, and find the price of one roll.

Twenty-four wheat rolls and one loaf of rye bread cost \$10.70.  
If the bread costs \$2.30, find the cost of one roll.

First subtract \$\_\_\_\_\_ from \$\_\_\_\_\_.

Then \_\_\_\_\_ that result by \_\_\_\_\_.

One roll costs \$\_\_\_\_\_.

b. Write a *single* expression to match the explanation above.


4. Seven muffins and one drink cost \$7.11. If the drink costs \$1.23, find the cost of one muffin.


You are used to dividing *whole numbers* with long division, and sometimes getting a remainder. For example,  $24 \div 5 = 4 \text{ R}4$ .

If we add decimal zeros (.0 or .00 or .000) to the dividend, we do not change its value, but sometimes the quotient comes out even!

For example, if we use long division to divide 24.0 by 5, the quotient is exactly 4.8! Multiplying  $5 \times 4.8 = 24$  verifies this.

$$\begin{array}{r} 04.8 \\ 5 \overline{)24.0} \\ \underline{20} \phantom{0} \\ 40 \\ \underline{-40} \\ 0 \end{array}$$

**Check:**

$$\begin{array}{r} 4 \\ 4.8 \\ \times 5 \\ \hline 24.0 \end{array}$$

5. Divide in two ways: first by indicating a remainder, then by long division. Check by multiplying.

a.  $31 \div 4 = \underline{\quad} \text{ R } \underline{\quad}$

$$4 \overline{)31.00}$$

Check:

b.  $56 \div 5 = \underline{\quad} \text{ R } \underline{\quad}$

$$5 \overline{)56.0}$$

Check:

c.  $15 \div 8 = \underline{\quad} \text{ R } \underline{\quad}$

$$8 \overline{)15.000}$$

Check:

d.  $45 \div 20 = \underline{\quad} \text{ R } \underline{\quad}$

$$20 \overline{)45.00}$$

Check:

