More on Decimals

Objective 1

Learn how to Round Decimal Numbers

The technique for rounding decimal numbers is slightly different than that for rounding whole numbers.

Sometimes we need to add zeros to the decimal to represent place values. Such is the case when we need to round the whole number 3 to the nearest hundredth. In this case, we would have to write in the decimal point to the right of the whole number and add two zeros.

$8 = 8.00$

The rightmost 0 is in the hundredths place.

The two quantities above are equivalent, but the quantity on the right of the equal sign is expressed as a quantity rounded to the nearest hundredth.

Rounding Decimal Numbers

First locate the digit that is <u>one place to the right</u> of the place value you want to round to.*

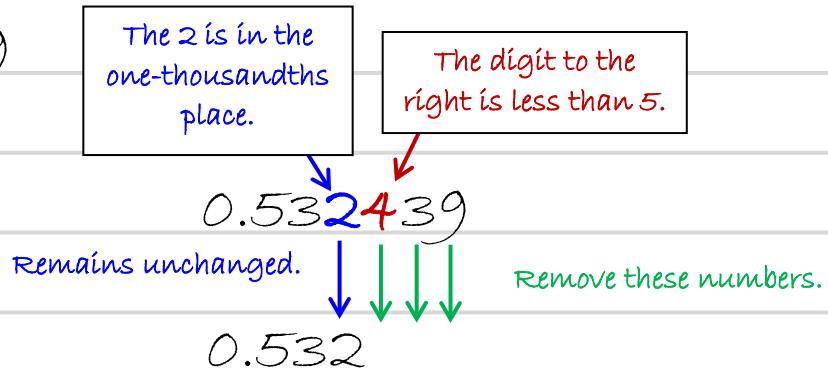
If that digit is less than 5, remove it as well as all other digits to the right.

If the digit is greater than or equal to 5, add 1 to the digit to its left and remove it as well as all other digits to the right.

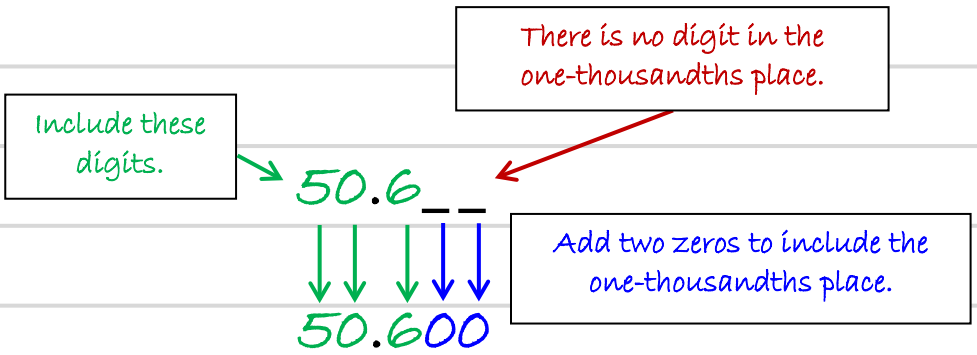
* If the number has no digit in the place value you want to round to, add zeros to the right of your number up to and including the place value you want to round to.

Example 1: Round the following numbers to the nearest one-thousandth.

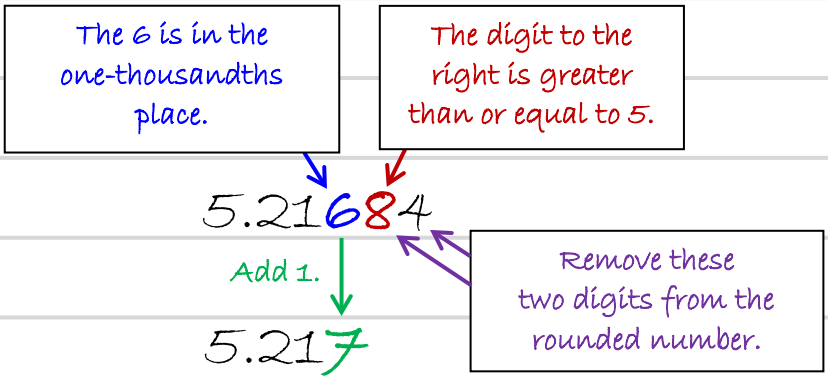
a) 0.532439



b) 50.6



c) 5.21684



Answer the following homework questions.

In Exercises 1 – 6, round each number to the nearest **one-thousandth**.

1) 1.2597
2) 15.1
3) 0.0055468
4) 0.9999999
5) 123
6) 0.3333333

In Exercises 6 – 11, round each number to the nearest **tenth**.

6) 52
7) 6.785
8) 18,576.3265
9) 0.00005
10) 9.99
11) 0.5000

Objective 2

Write Fractions as Decimal Equivalents

The fraction $\frac{1}{2}$ is equivalent to the quotient $1 \div 2$. Performing this division problem by hand or with a calculator will result with 0.5 or $\frac{5}{10}$. Notice that $\frac{5}{10} = \frac{1}{2} = 0.5$ (five-tenths).

Example 2: Write each fraction as a decimal rounded to the nearest hundredth.

a) $\frac{12}{13}$ b) $\frac{3}{4}$ c) $\frac{5}{8}$ d) $2\frac{3}{16} = \frac{35}{16}$

0.923

Answer the following homework questions.

In Exercises 12 - 19, convert each fraction to a decimal rounded to the nearest ten-thousandth.

12) $\frac{3}{5}$ 14) $\frac{2}{3}$ 16) $\frac{1}{8}$ 18) $\frac{3}{8}$

13) $\frac{5}{6}$ 15) $\frac{5}{16}$ 17) $\frac{2}{8}$ 19) $\frac{4}{8}$