

Chapter Six
 Section five

Applications of Decimals and Percents:

Operations with Decimals:

Add and Subtract Decimals: **Line up the decimal points** before adding or subtracting.

Examples:

1. $.46 + 3.9 + 12.58$

$$\begin{array}{r} .46 \\ 3.9 \\ +12.58 \\ \hline 16.94 \leftarrow \text{Sum} \end{array}$$

2. $12.1 - 8.723$

$$\begin{array}{r} 12.100 \quad \text{Attach zeros.} \\ - 8.723 \\ \hline 3.377 \leftarrow \text{Difference} \end{array}$$

Multiplication and Division of Decimals

1. To multiply decimals, perform the multiplication in the same manner as integers are multiplied. The number of decimal places to the right of the decimal point in the product is the *sum* of the numbers of places to the right of the decimal points in the factors.
2. To divide decimals, move the decimal point to the right the same number of places in the divisor and the dividend so as to obtain a whole number in the divisor. Perform the division in the same manner as integers are divided. The number of decimal places to the right of the decimal point in the quotient is the same as the number of places to the right in the dividend.

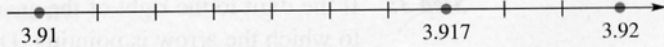
(a) To find the product 4.613×2.52 , use the following method.

$$\begin{array}{r} 4.613 \leftarrow 3 \text{ decimal places} \\ \times 2.52 \leftarrow 2 \text{ decimal places} \\ \hline 9226 \\ 23065 \\ 9226 \\ \hline 11.62476 \leftarrow 3 + 2 = 5 \text{ decimal places} \end{array}$$

(b) To find the quotient $65.175 \div 8.25$, follow these steps.

$$\begin{array}{r} 8.25 \overline{)65.175} \longrightarrow 825 \overline{)6517.5} \\ \underline{5775} \\ 7425 \\ \underline{7425} \\ 0 \end{array}$$

Round 3.917 to the nearest hundredth.



The answer is 3.92.

Rules for Rounding Decimals

- Step 1:** Locate the **place** to which the number is being rounded.
- Step 2:** Look at the next **digit to the right** of the place to which the number is being rounded.
- Step 3A:** If this digit is **less than 5**, drop all digits to the right of the place to which the number is being rounded. Do *not change* the digit in the place to which the number is being rounded.
- Step 3B:** If this digit is **5 or greater**, drop all digits to the right of the place to which the number is being rounded. *Add one* to the digit in the place to which the number is being rounded.

Example: Round 14.39656 to the nearest thousandth. (The answer is 14.397. How to do it?)

Definition of Percent:

$$1\% = \frac{1}{100} = 0.01$$

Converting Between Decimals and Percents

1. To convert a percent to a decimal, drop the % sign and move the decimal point two places to the left, inserting zeros as placeholders if necessary.
2. To convert a decimal to a percent, move the decimal point two places to the right, inserting zeros as placeholders if necessary, and attach a % sign.

Converting a Fraction to a Percent

To convert a fraction to a percent, convert the fraction to a decimal, and then convert the decimal to a percent.

Examples:

1. Convert 98% to a decimal.
2. Convert 3.4% to a decimal.
3. Convert 2% to a decimal.
4. Convert .13 to a percent.
5. Convert .582 to a percent.
6. Convert 2.3 to a percent.
7. Convert $\frac{3}{5}$ to a percent.
8. Convert $\frac{14}{25}$ to a percent.
9. Find 18% of 250.
10. A scanner costs \$140.00. What is the total cost of the scanner including 9.275%?