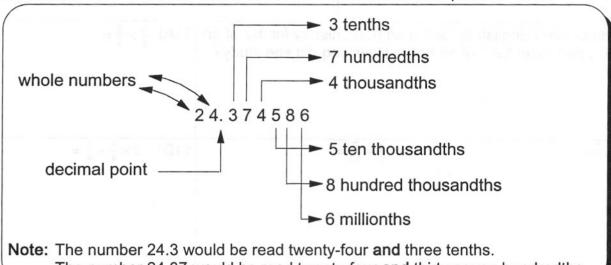# Part 3   Decimals, Ratios, Rates, Proportions, and Percentages

Unit 14   Introduction to Decimals

1. Decimals are similar to fractions with denominators of 10, 100, 1,000, etc.

   $\frac{1}{10}$ and .1 are read **one tenth**.

   $\frac{11}{100}$ and .11 are read **eleven hundredths**.

   $\frac{111}{1,000}$ and .111 are read **one hundred eleven thousandths**.

2. Decimals can be used with whole numbers. Read the decimal point as **"and."**

   whole numbers

   2 4. 3 7 4 5 8 6

   → 3 tenths
   → 7 hundredths
   → 4 thousandths
   → 5 ten thousandths
   → 8 hundred thousandths
   → 6 millionths

   decimal point

   Note: The number 24.3 would be read twenty-four **and** three tenths.
   The number 24.37 would be read twenty-four **and** thirty-seven hundredths.

3. Place value is important with decimals.

To the left of the decimal point, place values are 10 times larger.
$70 = (7)(10)$
$700 = (70)(10)$
$7,000 = (700)(10)$

To the right of the decimal, place values are 1/10 as large.
$.7 = (7)\left(\frac{1}{10}\right)$
$.07 = (.7)\left(\frac{1}{10}\right)$
$.007 = (.07)\left(\frac{1}{10}\right)$

Adding zeros between a decimal and a number will make the number smaller.
.7 → .07   → .007
$\frac{7}{10} > \frac{7}{100} > \frac{7}{1,000}$

Adding zeros to the right of a number will not change the value of the number.
.7 →   .70 →   .700
$\frac{7}{10} = \frac{70}{100} = \frac{700}{1,000}$