

Unit G

Sections 1 and 2

Helpful Hints

Place Value

Relationship between fraction and numbers

hundred millions	ten millions	millions	hundred thousands	ten thousands	thousands	hundreds	tens	units	• decimal	tenths	hundredths	thousandths	ten thousandths

$\frac{7}{10} = 0.7$	$\frac{7}{100} = 0.07$	$\frac{7}{1000} = 0.007$
1 zero in 10	2 zeros in 100	3 zeros in 1000
1 decimal place	2 decimal places	3 decimal places
in 0.7	in 0.07	in 0.0007

The Relationship between Fractions and Decimals

$$\frac{3}{10} = 0.3 \text{ three tenths}$$

$$\frac{1}{4} = \frac{25}{100} = 0.25 \text{ twenty-five hundredths}$$

The simplest of these conversions comes when the denominator is or can be very easily converted into a multiple of ten. This is the case for the previous two examples. In the next example, we cannot easily change the denominator, so we use the fraction bar as a division sign.

$$\frac{1}{8} \text{ can be read as "one divided by eight"}$$

As a result... $8 \overline{)1.000}$

In this division problem, note that the one is written as 1.000. In fact, we can add or "annex" as many zeros as we need to the right of the decimal point. This decimal that we found (.125) is called a **terminating decimal** because we can divide until we have a remainder of zero.

Comparing Decimal Numbers

If there are two decimal numbers we can compare them. One number is either greater than, less than or equal to the other number. A decimal number is just a fractional number. Comparing 0.7 and 0.07 is clearer if we compared $\frac{7}{10}$ to $\frac{7}{100}$. The fraction $\frac{7}{10}$ is equivalent to $\frac{70}{100}$ which is clearly larger than $\frac{7}{100}$. Therefore, when decimals are compared start with tenths place and then hundredths place, etc. If one decimal has a higher number in the tenths place then it is larger than a decimal with fewer tenths. If the tenths are equal compare the hundredths, then the thousandths etc. until one decimal is larger or there are no more places to compare. If each decimal place value is the same then the decimals are equal.