MA 130 SECTION 6.4 RATIONAL NUMBERS

**HOMEWORK: 1 – 45 odd**

OBJECTIVES:

- Identify properties of rational numbers
- Employ procedures for mental computation and estimation with rational numbers

1. Properties of Rational-Number Operations

   A. Closure (Addition, Multiplication, Subtraction, & Division)
   B. Associative (Addition & Multiplication)
   C. Commutative (Addition & Multiplication)
   D. Distributive (of Multiplication over addition & over subtraction)
   E. Additive identity
   F. Multiplicative identity
   G. Additive Inverse
   H. Multiplicative Inverse

2. Identify and Apply the Properties

   A. What is the additive inverse of $\frac{2}{5}$?

   B. What property of rational numbers supports the following statement?

   $$2 \bullet \frac{1}{2} x = x$$

   C. What property of rational numbers could you use to help simplify the following computation?

   $$3 + \frac{3}{7} + 5 + \frac{4}{7}$$

   D. Use the distributive property of multiplication over addition to compute:

   $$8 \times 3\frac{1}{4}$$

E. What is the multiplicative inverse of

(i) $\frac{5}{7}$ (ii) -3

3. Strategies for Mental Computation and Estimation

A. When adding or subtracting fractions round the fraction to 0, ½, or 1.

Estimate: $\frac{4}{5} + \frac{1}{3} + \frac{1}{10} + 4$

B. When multiplying with fractions the compatible number strategy is useful.

Estimate: $\frac{2}{5}$ of 587

4. Common Error Patterns
Replicate the error pattern and write a description of the misconception.

$$\begin{array}{r} 14\frac{3}{5} \\ -\ 8\frac{1}{2} \\ \hline 6\frac{2}{3} \end{array} \qquad \begin{array}{r} 12\frac{4}{5} \\ -6\frac{1}{3} \\ \hline \end{array} \qquad \begin{array}{r} 8\frac{5}{12} \\ -5\frac{1}{2} \\ \hline \end{array}$$