Intermediate Algebra **The L.C.D. and**
MAT 1033 **Adding/Subtracting Algebraic Fractions**

Problems 1 – 3: Determine the LCD for each fraction.

1. $\frac{3}{4x^2}+\frac{5}{6x}$ **2.** $\frac{x-1}{3x-2}-\frac{2x-3}{6x+1}$ **3.** $\frac{2x+2}{3x^2-10x+3}+\frac{4x+1}{3x^2+5x-2}$

Problems 4 – 6: Perform the operations in 1 – 3 and write the result in lowest terms.

4. **5.** **6.**

Problems 7 and 8: Perform the indicated operations and simplify.

7. $\frac{x+1}{x-2}+\frac{3}{x+3}-\frac{4x-3}{x^2+x-6}$ **8.** $\frac{x+7}{x^2+5x+4}-\frac{x-1}{x^2+6x+8}$

Fractional Equations Including Proportions

Solve each equation for the variable.

1. $\frac{2}{x-3}=\frac{1}{x+2}$ **2.** $\frac{2}{x+1}-\frac{3}{x+2}=\frac{1}{3x+3}$ **3.** $\frac{2}{x-1}=\frac{x}{x+2}$

4. $\frac{x}{x-3}-\frac{2x^2+9}{2x^2-3x-9}=\frac{1}{2x+3}$ **5.** $\frac{x}{x-1}=\frac{3}{x^2+x-2}$ **6.** $\frac{3}{2x-1}+\frac{1}{x+4}=\frac{5x+11}{(2x-1)(x+4)}$

7. $\frac{8}{5}+\frac{3}{2x}=\frac{3}{5}$ **8.** $\frac{a}{a-2}+\frac{2}{3}=\frac{2}{a-2}$ **9.** $\frac{x}{7}=\frac{4}{x+3}$ **10.** $\frac{x}{x+1}-2=\frac{3}{x-3}$

11. $2-\frac{3x}{x-4}=\frac{14}{x+7}$ **12.** $\frac{-2}{x-5}=\frac{1}{x+9}$ **13.** $\frac{a}{a+5}-2=\frac{3a}{a+5}$

14. $\frac{9}{4x}+\frac{1}{3}=\frac{5}{2x}$ **15.** $\frac{x^2-20}{x^2-7x+12}=\frac{3}{x-3}+\frac{5}{x-4}$ **16.** $\frac{12}{3x^2+12x}=1-\frac{1}{x+4}$

Key: Add/Sub Fractions: 1. $12x^2$ **2.** $(3x-2)(6x+1)$ **3.** $(3x-1)(x-3)(x+2)$ **4.** $\frac{9+10x}{12x^2}$

5. $\frac{8x-7}{(3x-2)(6x+1)}$ **6.** $\frac{2x-1}{(x-3)(x+2)}$ **7.** $\frac{x}{x-2}$ **8.** $\frac{9x+15}{(x+4)(x+1)(x+2)}$

Fractional Equations: 1. x = -7 **2.** $x=\frac{1}{4}$ **3.** $x=4$ or -1 **4.** No solution as x = 3 is extraneous

5. x = -3 only, 1 is extraneous **6.** All Reals. Infinite number of solutions. **7.** $x=-\frac{3}{2}$ **8.** No solution as a = 2 is extraneous. **9. x = 4 or –7** **10. x = -3 or 1** **11. x = 0 or –29** **12.** $x=-\frac{13}{3}$ **13.** $a=-\frac{5}{2}$

14. $x=\frac{3}{4}$ **15. x = 7 or 1** **16. x = 1 only, –4 is extraneous**