Rational Expressions (Sections 6.1, 6.2)

After multiplying or dividing, don't forget to simplify. Simplify by factoring the numerator and denominator, and then removing factors of 1 (same factor in numerator and denominator).

1) Simplify: $\dfrac{16x^2 - 4x^3}{x^2 - 2x - 8}$

2) Multiply and simplify: $\dfrac{2x^2 - 18}{10x} \cdot \dfrac{25x^3 + 10x^2}{x - 3}$

3) Divide and simplify: $\dfrac{4m - 8}{m + 2} \div \dfrac{m - 2}{m^2 - 4}$

4) Multiply and simplify: $\dfrac{x^2+5x+4}{x^2-6x+8} \cdot \dfrac{x^2+5x-14}{x^2+8x+7}$

Adding and Subtracting Rational Expressions with the Same Denominator (Section 6.3)

5) Subtract and simplify: $\dfrac{x^2}{x-3} - \dfrac{8x-15}{x-3}$

Adding and Subtracting Rational Expressions (Section 6.4)

You must have a common denominator before adding or subtracting. After adding or subtracting, don't forget to simplify.

6) Add and simplify. First, find a common denominator: $\dfrac{x+y}{2x^2y}+\dfrac{2x-y}{xy^2}$

7) Subtract and simplify. First, find a common denominator: $\dfrac{2}{x+5}-\dfrac{3}{2x}$