4.7 Pulling it all together

Creating New Functions

In this lesson you will use all four operations of arithmetic to combine rational expressions. As you work with your team on the problems consider the following questions:

What operation are we using here and what steps will we need to take?

Is it possible to factor the numerators or denominators of the expressions?

How can we use the multiplication property of the "Giant One"?

What values of x must be excluded? How will that affect the graph?

Is our answer a rational expression?

- **3-110.** PULLING IT ALL TOGETHER

You now know how to add, subtract, multiply, and divide rational expressions. Pull this all together by simplifying the following expressions.

a. $\frac{2x^2+x}{(2x+1)^2} - \frac{3}{2x+1}$

b. $\frac{x^2-3x-10}{x^2-4x-5} \div \frac{x^2-7x-18}{2x^2-5x-7}$

c. $\frac{15x-20}{x-5} \cdot \frac{x^2-2x-15}{3x^2+5x-12}$

d. $\frac{4}{2x+3} + \frac{x^2-x-2}{2x^2+5x+3}$

e. $\frac{6x-4}{3x^2-17x+10} - \frac{1}{x^2-2x-15}$

f. $\frac{x^2-x-2}{4x^2-7x-2} \div \frac{x^2-2x-3}{3x^2-8x-3}$