Simplifying Rational Expressions

A rational expression is simplified when there are no multiplicative identity pairs within the expression.

6. Follow these steps exactly to simplify the following rational expressions:
   1- factor the numerators and denominators
   2- write the multiplicative inverse pair separately and write a “Big One” around each one
   3- write the multiplicative inverse pair as the multiplicative identity (1)
   4- write the equivalent expression without the 1.

Example 1: $\frac{x^2+5x-14}{x^2-7x+10} = \frac{(x-2)(x+7)}{(x-5)(x-2)} = \boxed{1}\cdot\frac{(x+7)}{(x-5)} = 1\cdot\frac{(x+7)}{(x-5)} = \frac{(x+7)}{(x-5)}$

a) $\frac{x^2+7x+12}{x^2+5x+6}$

b) $\frac{z^2-25}{5z+z^2}$

c) $\frac{2x^2-2x}{x^2-1}$

d) $\frac{2y^2-2y-8}{y^2-9y+20}$

e) $\frac{8x^3-16x^2}{2x^3-2x^2-4x}$