Integrated Math 3. Chapter 10. Simplifying Complex Fractions Homework **Name:**_____

Directions: Simplify the complex fraction.

1) $\dfrac{\left(\frac{x}{3}-6\right)}{\left(10+\frac{4}{x}\right)}$ LCD: $3x$, $\cdot \dfrac{3x}{3x}$

$= \dfrac{x^2-18x}{30x+12}$

$= \dfrac{x(x-18)}{6(5x+2)}$

2) $\dfrac{\left(15-\frac{2}{x}\right)}{\left(\frac{x}{5}+4\right)} \cdot \dfrac{5x}{5x}$

$= \dfrac{75x-10}{x^2+20x}$

$= \dfrac{5(15x-2)}{x(x+20)}$

3) LCD: $(x-2)(x+1)x$

$\dfrac{\left(\frac{16}{x-2}\right)}{\left(\frac{4}{x+1}+\frac{6}{x}\right)} \cdot \dfrac{x(x-2)(x+1)}{x(x-2)(x+1)}$

$= \dfrac{16x(x+1)}{4x(x-2)+6(x-2)(x+1)}$

$= \dfrac{16x(x+1)}{4x^2-8x+6(x^2-x-2)}$

$= \dfrac{16x(x+1)}{4x^2-8x+6x^2-6x-12}$

$= \dfrac{16x(x+1)}{10x^2-14x-12}$

$= \dfrac{16x(x+1)}{2(5x^2-7x-6)}$

$= \dfrac{16x(x+1)}{2(5x+3)(x-2)}$

$= \dfrac{8x(x+1)}{(5x+3)(x-2)}$

4) $\dfrac{\frac{3}{x-2}-\frac{6}{x^2-4}}{\frac{3}{x+2}+\frac{1}{x-2}}$

$= \dfrac{\left(\frac{3}{x-2}-\frac{6}{(x-2)(x+2)}\right)}{\left(\frac{3}{x+2}+\frac{1}{x-2}\right)} \cdot \dfrac{(x-2)(x+2)}{(x-2)(x+2)}$

$= \dfrac{3(x+2)-6}{3(x-2)+1(x+2)}$

$= \dfrac{3x+6-6}{3x-6+x+2}$

$= \dfrac{3x}{4x-4}$

$= \dfrac{3x}{4(x-1)}$