Unit 4 *Module 9.1* *Part 1*	*Rationals*: Add and Subtract Rational Expressions
Objective:	*Given a rational expression, students will be able to add or subtract by finding a common denominator.*

Goal:

$$\frac{1}{x+2} - \frac{4}{x-3} \quad ?$$

Quiz tomorrow/today

Friday; need charged Chromebook to class

:)

Example

Simplify

1. $\frac{7}{12} - \frac{5}{6}$

$\frac{7}{12} \cdot \frac{1}{1} = \frac{7}{12}$

$\frac{5}{6} \cdot \frac{2}{2} = \frac{10}{12}$

$\frac{7}{12} - \frac{10}{12} = \frac{-3}{12} = \frac{-1}{4}$

2. $\frac{2}{3x} + \frac{1}{x^2}$

$\frac{2}{3x} \cdot \frac{x}{x} = \frac{2x}{3x^2}$

$\frac{1}{x^2} \cdot \frac{3}{3} = \frac{3}{3x^2}$

$\frac{2x}{3x^2} + \frac{3}{3x^2} = \frac{2x+3}{3x^2}$

ERROR ANALYSIS **Describe and correct the error in simplifying** $\frac{1}{3x} - \frac{2}{3}$

$$\frac{1}{3x} - \frac{2}{3}$$

$$= \frac{1}{3x} - \frac{2x}{3x}$$

$$= \frac{1-2x}{9x^2}$$

Describe: Do not change the common denominator.

Correct: $= \frac{1-2x}{3x}$

:)

Example

Simplify

$$\frac{7}{2x} - \frac{6}{(x-5)}$$

Do not dist. denominator

$\frac{1}{2} + \frac{1}{3} = \frac{3}{6} + \frac{2}{6}$

only numerator

$\frac{7}{2x} = \frac{7(x-5)}{2x(x-5)} = \frac{7x-35}{2x(x-5)}$

$\frac{-6}{(x-5)} = \frac{-6(2x)}{2x(x-5)} = \frac{-12x}{2x(x-5)}$

$\frac{7x-35}{2x(x-5)} - \frac{12x}{2x(x-5)}$ ✓

$\frac{-5x-35}{2x(x-5)} = \frac{-5(x+7)}{2x(x-5)}$

Example

Simplify

$$\frac{4x}{(x+2)} - \frac{x}{(x-2)}$$

12 : 6

6·2 : 6·1

$+ \quad -x$

$$\frac{4x}{(x+2)} = \frac{4x(x-2)}{(x+2)(x-2)}$$

$$\frac{-x}{(x-2)} = \frac{-x(x+2)}{(x+2)(x-2)}$$

$$\frac{4x^2-8x}{(x+2)(x-2)} + \frac{-x^2-2x}{(x+2)(x-2)}$$

$$\frac{3x^2-10x}{(x-2)(x+2)} = \frac{x(3x-10)}{(x-2)(x+2)}$$