Warm-up

① $\frac{4}{9} + \frac{15}{9}$

* Same denominator
So add numerators

$$\frac{4+15}{9} = \frac{19}{9}$$

② $\frac{2}{3} \cdot \frac{4}{4} - \frac{1}{4} \cdot \frac{3}{3}$

* Not same denom
LCD: 12

$$\frac{8}{12} - \frac{3}{12} = \frac{8-3}{12}$$

$$= \frac{5}{12}$$

8.5 Add/Subtract Rational Expressions

Perform the indicated operation.

a. $\frac{7}{4x} + \frac{3}{4x} = \frac{7+3}{4x} = \frac{10}{4x} = \frac{5}{2x}$ (×2 / ÷2)

* Have common denom of 4x

b. $\frac{2x}{x+6} - \frac{5}{x+6} = \frac{2x-5}{x+6}$

* Yea.... common denom

d. $\frac{2x}{x^2+1} + \frac{2}{x^2+1} = \frac{2x+2}{x^2+1} = \frac{2(x+1)}{(x^2+1)}$ ← GCF

* Sure -- common denom

Subtract: ② $\dfrac{x+2}{2x-2} - \dfrac{-2x-1}{x^2-4x+3}$

$2(x-1)$ $\quad$ $(x-1)(x-3)$

$\rightarrow \dfrac{(x+2)(x-3)}{2(x-1)\cdot(x-3)} \quad \dfrac{(-2x-1)\cdot 2}{(x-1)(x-3)\cdot 2}$

* Get a common denom.
* Factor the denoms!

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

Multiply out $\longrightarrow$ $\dfrac{(x+2)(x-3) - 2(-2x-1)}{2(x-1)(x-3)}$

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

$= \dfrac{x^2 + 3x - 4}{2(x-1)(x-3)}$ ← Factor

$= \dfrac{(x-1)(x+4)}{2(x-1)(x-3)}$

$= \dfrac{(x+4)}{2(x-3)}$

Perform the indicated operation.

a. $\frac{7}{4x} + \frac{3}{4x}$