

①

$$\text{ID} \rightarrow \frac{3}{4} - \frac{5}{6} \leftarrow \text{ID}$$

$$\text{ID} \rightarrow \frac{7}{2} + \frac{4}{3} \leftarrow \text{ID}$$

$$\frac{3 \cdot \left(\frac{3}{4}\right) - 5 \cdot \left(\frac{5}{6}\right)}{6 \cdot \left(\frac{7}{2}\right) + 6 \cdot \left(\frac{4}{3}\right)}$$

$$\frac{9 - 10}{42 + 16}$$

NOTE: IN GENERAL
MULTIPLY ALL THE
"INSIDE" FRACTIONS
BY THE LCM OF ALL
THE INNER DENOMINATORS
(ID)

$$\frac{-1}{58}$$

②

$$\frac{x+2}{x-1} - \frac{x-7}{x-5}$$

$$5x-17$$

SIMPLIFYING COMPLEX RATIONAL
EXPRESSION

STEP 1: FACTOR THE ^{INNER} DENOMINATORS

STEP 2: FIGURE OUT THE LCM OF ALL
INNER DENOMS. AND MULTIPLY EVERYTHING
BY IT

$$\frac{\cancel{(x-1)}\cancel{(x-5)}\left(\frac{x+2}{\cancel{x-1}}\right) - \cancel{(x-1)}\cancel{(x-5)}\left(\frac{x-7}{\cancel{x-5}}\right)}{(x-1)\cancel{(x-5)}(5x-17)}$$

$$\frac{(x-5)(x+2) - (x-1)(x-7)}{(x-1)(x-5)(5x-17)}$$

STEP 3: GET RID OF PARENTS AND FACTOR
THE TOP AND BOTTOM

$$\frac{x^2 + 2x - 5x - 10 - (x^2 - 7x - 1x + 7)}{(x-1)(x-5)(5x-17)}$$

$$\frac{x^2 - 3x - 10 - (x^2 - 8x + 7)}{(x-1)(x-5)(5x-17)}$$

$$\frac{x^2 - 3x - 10 - x^2 + 8x - 7}{(x-1)(x-5)(5x-17)}$$

$$\frac{5x - 17}{(x-1)(x-5)(\cancel{5x-17})}$$

$$\frac{1}{(x-1)(x-5)}$$

STEP 4: CANCEL IF POSSIBLE