ADDING / SUBTRACTING RATIONAL EXPRESSIONS WITH DIFF. DENOMS.

STEP 1: FACTOR THE DENOMINATORS

STEP 2: FIND THE LCD AND REWRITE EACH FRACTION WITH THE NEW DENOMINATOR

STEP 3: GET RID OF PARENTHESIS ON TOP

STEP 4: ADD OR SUBTRACT THE TOPS AND PUT INTO A SINGLE FRACTION

STEP 5: FACTOR TOP

STEP 6: CANCEL IF POSSIBLE

(1)

$$\frac{4x-8}{x^2-9x+14} + \frac{x+3}{x-7}$$

PSD

$$\frac{4x-8}{(x-2)(x-7)} + \frac{x+3}{x-7}$$

$$\frac{4x-8}{(x-2)(x-7)} + \frac{(x+3)(x-2)}{(x-2)(x-7)}$$

$$\frac{4x-8}{(x-2)(x-7)} + \frac{x^2-2x+3x-6}{(x-2)(x-7)}$$

$$\frac{4x-8}{(x-2)(x-7)} + \frac{x^2+x-6}{(x-2)(x-7)}$$

$$\frac{x^2+4x+x-8-6}{(x-2)(x-7)}$$

PSO

$$\frac{x^2+5x-14}{(x-2)(x-7)}$$

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

$$\frac{x+7}{x-7}$$

(2)

$$\frac{9}{x-3} + \frac{x+3}{x^2-9}$$

DOTS

$$\frac{9}{x-3} + \frac{x+3}{(x+3)(x-3)}$$

$$\frac{9(x+3)}{(x-3)(x+3)} + \frac{x+3}{(x-3)(x+3)}$$

$$\frac{9x+27}{(x-3)(x+3)} + \frac{x+3}{(x-3)(x+3)}$$

$$\frac{9x+x+27+3}{(x-3)(x+3)}$$

$$\frac{10x+30}{(x-3)(x+3)}$$

GCF

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

$$\frac{10}{x-3}$$