Adding & Subtracting Rational Expressions

* need common denominator ~ to fractions

remember... to find C.D. you can multiply the bottoms

ex $\frac{2}{7} + \frac{1}{3} + \frac{2}{5}$ $\quad C.D. = 7 \cdot 3 \cdot 5 = 105$

$$\frac{2}{7}\left(\frac{3}{3}\right)\left(\frac{5}{5}\right) + \frac{1}{3}\left(\frac{7}{7}\right)\left(\frac{5}{5}\right) + \frac{2}{5}\left(\frac{3}{3}\right)\left(\frac{7}{7}\right)$$

$$\frac{30}{105} + \frac{35}{105} + \frac{42}{105} = \boxed{\frac{107}{105}}$$

rational expressions

- still factor 1st if no C.D. the denominator

ex $\frac{x^2-3x-7}{x} - \frac{2x+3}{x}$ ← both pieces being subtracted $= \frac{x^2-3x-7-(2x+3)}{x} = \boxed{\frac{x^2-5x-10}{x}}$

already a C.D.

ex 2 $\frac{3x}{x-1} + \frac{2}{x}$ $\quad C.D. = x(x-1)$

$$= \frac{3x}{x-1}\left(\frac{x}{x}\right) + \frac{2}{x}\left(\frac{x-1}{x-1}\right) = \frac{3x^2 + 2(x-1)}{x(x-1)} = \boxed{\frac{3x^2+2x-1}{x(x-1)}}$$

$(3x-1)(x+1)$

STEPS

1. find a C.D. may involve factoring
2. multiply/FOIL tops & combine like terms
3. Factor the top if possible
4. cancel if possible