

ADDING / SUBTRACTING RATIONAL EXPRESSIONS

How do we do $\frac{5}{5} \times \frac{3}{4} + \frac{1}{5} \times \frac{4}{4}?$

$$\frac{15}{20} + \frac{4}{20} = \frac{19}{20}$$

SO WE DO THE SAME FOR RATIONAL EXPRESSIONS

$$\text{IE } \frac{3x-4}{7} \ominus \frac{2x+9}{7} = \frac{x-13}{7}$$

$$\text{IE } \frac{3x}{4} + \frac{x}{5} = \frac{15x}{20} + \frac{4x}{20} = \frac{19x}{20}$$

$$\frac{7x \cdot \frac{4}{3x} - \frac{3x}{7} \cdot \frac{3x}{3x}}{7}$$

$$\frac{28}{21x} - \frac{9x^2}{21x} = \frac{28 - 9x^2}{21x}$$

$$\frac{4y^2 \cdot \frac{3y}{4y^2} \cdot x + \frac{7x \cdot \frac{4x}{y^2} - \frac{2x+1}{4y} \cdot \frac{xy}{xy}}{4y^2} + \frac{28x^2}{4xy^2} - \frac{2x^2y + xy}{4xy^2}$$

$$\frac{12y^3 + 28x^2 - 2x^2y - xy}{4xy^2}$$

DENOMINATORS WHICH ARE NOT MONOMIALS

$$\text{IE } \frac{x-3}{x-2} \text{ (C)} \quad \frac{x-10}{x-2} = \frac{x-3 - x+10}{x-2} = \frac{7}{x-2}$$

$$\text{IE } \frac{6}{(x+2)x} + \frac{3x}{x+2} \times \frac{x}{x} \quad * \text{ SO WE DO THE SAME AS BEFORE BUT OUR DENOMINATORS ARE A LITTLE MORE COMPLICATED}$$

$$\frac{6x+12}{(x+2)x} + \frac{3x^2}{(x+2)x} = \frac{3x^2+6x+12}{(x+2)x} = \frac{3(x^2+2x+4)}{(x+2)x} *$$

$$\text{IE } \frac{5}{2x+6} - \frac{3}{3x+9} = \frac{3}{2} \times \frac{5}{2(x+3)} - \frac{3}{3(x+3)} \times \frac{2}{2}$$

$$\frac{15}{6(x+3)} - \frac{6}{6(x+3)}$$

$$\frac{9}{6(x+3)} = \frac{3}{2(x+3)}$$

H/W p. 381

1-8 A, C, E

ADDING / SUBTRACTING RATIONAL EXPRESSIONS CONT'D

III Simplify

$$\frac{y}{5-x} - \frac{y}{x+5} + \frac{2}{x^2-25}$$

$$-1 \times \frac{y}{5-x} - \frac{y}{x+5} + \frac{2}{(x+5)(x-5)}$$

$$\frac{\overset{(-1) \times (-y)}{x+5} \times \frac{-y}{x-5} - \frac{y \times (x+5)}{x+5} + \frac{2}{(x+5)(x-5)}}$$

$$\frac{-xy - 5y}{(x+5)(x-5)} - \frac{xy + 5y}{(x+5)(x-5)} + \frac{2}{(x+5)(x-5)}$$

$$\frac{\cancel{x}y - \cancel{8}y + \cancel{x}y + \cancel{8}y + 2}{(x+5)(x-5)}$$

$$\frac{-2xy + 2}{(x+5)(x-5)}$$

$$\frac{x}{x^2 - 5x + 6} - \frac{x-4}{x^2 + 2x - 12}$$

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

4+6

$$= \frac{16x - 8}{(x+4)(x-2)(x-3)}$$

