Adding and Subtracting Rational Expressions: in class questions.

1. $\frac{3}{8x^2}+\frac{1}{4x}-\frac{5}{6x^3}$ $(3x)$ $(6x^2)$ (4) $24x^3$

$$= \frac{9x+6x^2-20}{24x^3}$$

$\{x \neq 0\}$

$\frac{10}{15}+\frac{12}{15}=\frac{22}{15}$

$\frac{6}{12}+\frac{2}{12}=\frac{8}{12}=\frac{2}{3}$

2. $\frac{3n}{(2n+1)}+\frac{4}{(n-3)}$ $(n-3)$ $(2n+1)$

$$= \frac{3n(n-3)+4(2n+1)}{(2n+1)(n-3)}$$

$$= \frac{3n^2-9n+8n+4}{(2n+1)(n-3)} = \frac{3n^2-n+4}{(2n+1)(n-3)}$$

$\{n \neq -\frac{1}{2}, 3\}$

3. $\frac{2x}{x^2-1}-\frac{x+2}{x^2+3x-4}$

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

$$= \frac{2x^2+8x-(x^2+3x+2)}{(x-1)(x+1)(x+4)} = \frac{x^2+5x-2}{(x-1)(x+1)(x+4)}$$

$\{x \neq -4, -1, 1\}$

4. $\dfrac{6x}{x^2-5x+6}-\dfrac{3x}{x^2+x-12}$

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

$= \dfrac{6x^2+24x-3x^2+6x}{(x-2)(x-3)(x+4)} = \dfrac{3x^2+30x}{(x-2)(x-3)(x+4)}$

$\{x \neq -4, 2, 3\}$

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5. $\dfrac{7}{2x-2}+\dfrac{2x^2}{(x-1)^2}\div\dfrac{4x}{x^2-1}$

$2+6\div 3 = 4$

$= \dfrac{7}{2(x-1)} + \dfrac{2x^2}{(x-1)(x-1)} \times \dfrac{(x-1)(x+1)}{2x}$

$= \dfrac{7}{2(x-1)} + \dfrac{x(x+1)}{2(x-1)}$ (x^2+x)

$= \dfrac{x^2+x+7}{2(x-1)}$

$\{x \neq -1, 0, 1\}$

HW: pg 128 # 5ac, 6cef, 7ace, 9ac