Precalculus Algebra Review Worksheet #4 Rational Expressions Selected Solutions

Perform the indicated operations. Express your answers in simplest form.

3. $\dfrac{x+4}{3x^2-12} + \dfrac{x+1}{3x^2+6x} = \dfrac{2x-1}{3x(x-2)}$

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

$3(x+2)(x-2)$

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

4. $\dfrac{3}{6x^2+x-2} + \dfrac{2}{4x^2-4x+1} = \dfrac{12x+1}{(3x+2)(2x-1)^2}$

$$\frac{3}{(3x+2)(2x-1)} + \frac{2}{(2x-1)(2x-1)} = \frac{3(2x-1)+2(3x+2)}{(3x+2)(2x-1)^2} = \frac{6x-3+6x+4}{(3x+2)(2x-1)^2}$$

7. $\dfrac{x+2}{10x} - \dfrac{2x-1}{4x} = \dfrac{-8x+9}{20x}$

$$\frac{2(x+2)-5(2x-1)}{20x} = \frac{2x+4-10x+5}{20x} = \frac{-8x+9}{20x}$$

9. $\dfrac{x-3}{5x^2+3x} - \dfrac{x-5}{5x^2-7x-6} = \dfrac{6}{x(5x+3)(x-2)}$

$$\frac{x-3}{x(5x+3)} - \frac{x-5}{(5x+3)(x-2)} = \frac{(x-3)(x-2)-x(x-5)}{x(5x+3)(x-2)} =$$

$$= \frac{x^2-5x+6-x^2+5x}{x(5x+3)(x-2)}$$