

138 Add & Subtract Rational Expressions

$$1. \frac{7}{12x} - \frac{5}{12x} = \frac{2}{12x} = \frac{1}{6x}$$

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

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

4. $\frac{3}{4x} - \frac{1}{7}$ Common denominator: $28x$

$$\left. \begin{array}{l} \frac{3}{4x} \cdot \frac{7}{7} = \frac{21}{28x} \\ \frac{1}{7} \cdot \frac{4x}{4x} = \frac{4x}{28x} \end{array} \right\} \frac{21}{28x} - \frac{4x}{28x} = \frac{21-4x}{28x}$$

5. $\frac{1}{3x^2} + \frac{x}{9x^2-12x}$ Common Denominator $3x^2(3x-4)$

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

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

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

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

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