

2.7 Adding and Subtracting Rational Expressions

$$\frac{2}{5} + \frac{3}{4} = \frac{2(4) + 3(5)}{20} = \frac{8 + 15}{20} = \frac{23}{20}$$

$$\frac{2}{5} + \frac{4}{15} = \frac{2(3) + 4}{15} = \frac{6 + 4}{15} = \frac{10}{15} = \frac{2}{3}$$

3×5

$$\frac{1}{3} + \frac{4}{\cancel{9} 3^2} = \frac{3 + 4}{9} = \frac{7}{9}$$

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

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

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

$$x \neq 0$$

$$2. \quad \frac{3n}{\underbrace{2n+1}_\times} + \frac{4}{\underbrace{n-3}_\times}$$

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

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

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

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

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

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

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

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

$$= \frac{t^2 + 5t - 2}{(t+1)(t-1)(t+4)}$$

$$t \neq -4, -1, 1$$

4.

$$\frac{2x^2}{(x-1)^2} \div \frac{4x}{x^2-1} + \frac{7}{2x-2}$$

$$= \frac{\cancel{2}x^{\cancel{2}}}{(x-1)^{\cancel{2}}} \times \frac{(\cancel{x-1})(x+1)}{\cancel{2}\cancel{4}\cancel{x}} + \frac{7}{2(x-1)}$$

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

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