

$$\frac{(t+6)(t+2)}{(t+6)(t+4)} - \frac{(t-1)(t+4)}{(t+6)(t+4)} \quad (t+4)(t+6)$$

$$\frac{(t+6)(t+2) - (t-1)(t+4)}{(t+6)(t+4)}$$

$$\frac{t^2 + 2t + 6t + 12 - (t^2 + 4t - t - 4)}{(t+6)(t+4)}$$

$$\frac{t^2 + 8t + 12 - t^2 - 3t + 4}{(t+6)(t+4)}$$

$$\frac{5t + 16}{(t+6)(t+4)}$$

$$\frac{3r}{r^2-1} - \frac{2r-1}{r^2-2r+1}$$

$$(r+1)(r-1)^2$$

$$\frac{3r(r-1)}{(r+1)(r-1)(r-1)} - \frac{(2r-1)(r+1)}{(r-1)(r-1)(r+1)}$$

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

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

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

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

$$32. \frac{a+6}{a^2+8a+15} - \frac{a-3}{a+3}$$

$$(a+3)(a+5)$$

$$\frac{a+6}{(a+3)(a+5)} - \frac{(a-3)(a+5)}{(a+3)(a+5)}$$

$$\frac{a+6 - (a-3)(a+5)}{(a+3)(a+5)}$$

$$\frac{a+6 - [a^2 + 5a - 3a - 15]}{(a+3)(a+5)}$$

$$(a+3)(a+5)$$

$$\frac{a+6 - a^2 - 2a + 15}{(a+3)(a+5)}$$

$$(a+3)(a+5)$$

$$\frac{-a^2 - a + 2}{(a+3)(a+5)}$$

$$(x+3)(x-7)$$

$$38. \frac{x}{x-7} - \frac{x+3}{x^2-4x-21}$$

$$\frac{x(x+3)}{(x-7)(x+3)} - \frac{x+3}{(x+3)(x-7)}$$

$$\frac{x(x+3) - (x+3)}{(x-7)(x+3)}$$

$$\frac{x^2 + 3x - x - 3}{(x-7)(x+3)} = \frac{x^2 + 2x - 3}{(x-7)(x+3)}$$

$$\frac{(x-1)\cancel{(x+3)}}{(x-7)\cancel{(x+3)}} = \frac{x-1}{x-7}$$

$$44. \frac{u}{u-1} + \frac{2u}{u^2 - 2u + 1}$$

$$(u-1)^2$$

$$\frac{u(u-1)}{(u-1)(u-1)} + \frac{2u}{(u-1)(u-1)}$$

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

$$\frac{u^2 + u}{(u-1)^2}$$

$$50. \frac{x+1}{x^2-4x+4} + \frac{4}{x^2+3x-10}$$

$$\frac{(x+1)(x+5)}{(x-2)(x-2)(x+5)} + \frac{4(x-2)}{(x-2)(x+5)(x-2)}$$

(x-2)(x-2)(x+5)

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

$$56. \frac{m^2}{m^2 - m + 1} - \frac{m + 1}{m}$$

7.5 Complex Rational Expressions

$$8. \frac{\frac{2}{3}}{\frac{3}{2}}$$

$$12. \frac{\frac{2}{3} + \frac{1}{4}}{1 + \frac{1}{2}}$$

$$16. \frac{\frac{5}{2x-1}}{\frac{x}{x+1}}$$

$$20. \frac{\frac{a}{b} - 1}{a^2 - b^2}$$

$$24. \frac{x - \frac{1}{x}}{1 + \frac{1}{x}}$$

$$28. \frac{\frac{k+2}{k^2-3k}}{\frac{k^2-4}{k}}$$

$$34. \frac{\frac{1}{f+2} - \frac{1}{f-3}}{1 + \frac{1}{f^2 - f - 6}}$$

$$36. \frac{1 - \frac{3}{x}}{1 - \frac{2}{x} - \frac{3}{x^2}}$$

$$38. \frac{\frac{v^2 + v - 2}{v^2 + 4v}}{\frac{2v^2 - 8}{v^2 + 2v - 8}}$$

$$44. \frac{1 - \frac{1}{u^2}}{1 + \frac{2}{u} + \frac{1}{u^2}}$$

