

27.	$\frac{(2x + 3)(x - 1)}{(x - 3)(x + 3)^2}$	$\begin{aligned} & \frac{x}{x^2 - 9} + \frac{x + 1}{x^2 + 6x + 9} \\ &= \frac{x}{(x + 3)(x - 3)} + \frac{x + 1}{(x + 3)(x + 3)} \\ &= \frac{x}{(x + 3)(x - 3)} \cdot \frac{x + 3}{x + 3} + \frac{x + 1}{(x + 3)(x + 3)} \cdot \frac{x - 3}{x - 3} \\ &= \frac{x^2 + 3x}{(x + 3)(x + 3)(x - 3)} + \frac{x^2 - 2x - 3}{(x + 3)(x + 3)(x - 3)} \\ &= \frac{2x^2 + x - 3}{(x + 3)(x + 3)(x - 3)} \\ &= \frac{(2x + 3)(x - 1)}{(x + 3)(x + 3)(x - 3)} \\ &= \frac{(2x + 3)(x - 1)}{(x + 3)^2(x - 3)} \end{aligned}$
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29.	$\frac{8x^3 - 9x^2 - 28x + 8}{x(x-4)(3x-1)}$	$\begin{aligned} & \frac{x+2}{x-4} + \frac{2}{x} + \frac{5x}{3x-1} \\ &= \frac{x+2}{x-4} \cdot \frac{x(3x-1)}{x(3x-1)} + \frac{2}{x} \cdot \frac{(x-4)(3x-1)}{(x-4)(3x-1)} \\ & \quad + \frac{5x}{3x-1} \cdot \frac{x(x-4)}{x(x-4)} \\ &= \frac{x(3x^2 + 5x - 2)}{x(x-4)(3x-1)} + \frac{2(3x^2 - 13x + 4)}{x(x-4)(3x-1)} + \frac{5x^2(x-4)}{x(x-4)(3x-1)} \\ &= \frac{3x^3 + 5x^2 - 2x}{x(x-4)(3x-1)} + \frac{6x^2 - 26x + 8}{x(x-4)(3x-1)} + \frac{5x^3 - 20x^2}{x(x-4)(3x-1)} \\ &= \frac{8x^3 - 9x^2 - 28x + 8}{x(x-4)(3x-1)} \end{aligned}$
31.	$\frac{x(x-18)}{6(5x+2)}$	$\frac{\frac{x}{3} - 6}{10 + \frac{4}{x}} = \frac{\frac{x}{3} - 6}{10 + \frac{4}{x}} \cdot \frac{3x}{3x} = \frac{x^2 - 18x}{30x + 12} = \frac{x(x-18)}{6(5x+2)}$

33.

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

$$\begin{aligned} \frac{\frac{16}{x-2}}{\frac{4}{x+1} + \frac{6}{x}} &= \frac{\frac{16}{x-2}}{\frac{4}{x+1} + \frac{6}{x}} \cdot \frac{x(x-2)(x+1)}{x(x-2)(x+1)} \\ &= \frac{16x(x+1)}{4x(x-2) + 6(x-2)(x+1)} \\ &= \frac{16x(x+1)}{4x^2 - 8x + 6(x^2 - x - 2)} \\ &= \frac{16x(x+1)}{4x^2 - 8x + 6x^2 - 6x - 12} \\ &= \frac{16x(x+1)}{10x^2 - 14x - 12} \\ &= \frac{16x(x+1)}{2(5x^2 - 7x - 6)} \\ &= \frac{8x(x+1)}{(5x+3)(x-2)} \end{aligned}$$