

$$\begin{aligned}
\frac{2}{x-4} + \frac{x}{x+1} &= \frac{2}{x-4} \cdot \frac{x+1}{x+1} + \frac{x}{x+1} \cdot \frac{x-4}{x-4} = \frac{2(x+1) + x(x-4)}{(x+1)(x-4)} \\
&= \frac{2x+2+x^2-4x}{(x+1)(x-4)} \\
&= \frac{x^2-2x+2}{(x+1)(x-4)}
\end{aligned}$$

$$\begin{aligned}
4 - \frac{2x+1}{x+3} &= \frac{4}{1} - \frac{2x+1}{x+3} = \frac{4}{1} \cdot \frac{x+3}{x+3} - \frac{2x+1}{x+3} = \frac{4(x+3) - (2x+1)}{x+3} \\
&= \frac{4x+12-2x-1}{x+3} = \frac{2x+11}{x+3}
\end{aligned}$$

$$\begin{aligned}
\frac{x}{x-5} - \frac{x}{x+2} &= \frac{x}{x-5} \cdot \frac{x+2}{x+2} - \frac{x}{x+2} \cdot \frac{x-5}{x-5} = \frac{x(x+2) - x(x-5)}{(x+2)(x-5)} \\
&= \frac{x^2+2x-x^2+5x}{(x+2)(x-5)} = \frac{7x}{(x+2)(x-5)}
\end{aligned}$$