

$$\begin{aligned}
4. \quad & \frac{3ab}{a^2-ab} + \frac{5a}{a+b} - 2 \frac{b^2+2a^2}{a^2-b^2} = \\
& = \frac{3ab}{a(a-b)} + \frac{5a}{a+b} - 2 \frac{b^2+2a^2}{(a+b)(a-b)} = \\
& = \frac{3ab(a+b) + 5a^2(a-b) - 2a(b^2+2a^2)}{a(a+b)(a-b)} = \\
& = \frac{3a^2b + 3ab^2 + 5a^3 - 5a^2b - 2ab^2 - 4a^3}{a(a+b)(a-b)} = \\
& = \frac{-2a^2b + ab^2 + a^3}{a(a+b)(a-b)} = \frac{a(a^2 - 2ab + b^2)}{a(a+b)(a-b)} = \\
& = \frac{\cancel{(b-a)^2}}{\cancel{(a+b)(a-b)}} = \frac{(a-b)^2}{(a+b)(a-b)} = \frac{a-b}{a+b} \quad \begin{matrix} a \neq 0 \\ a \neq \pm b \end{matrix}
\end{aligned}$$

$$\begin{aligned}
5. \quad & \left(\frac{1}{2x-y} + \frac{3y}{y^2-4x^2} - \frac{2}{2x+y} \right) : \left(\frac{4x^2+y^2}{4x^2-y^2} + 1 \right) = \\
& = \frac{(2x+y) - 3y - 2(2x-y)}{(2x-y)(2x+y)} : \left(\frac{4x^2+y^2 + 4x^2 - y^2}{(2x-y)(2x+y)} \right) = \\
& = \frac{2x+y - 3y - 4x + 2y}{(2x-y)(2x+y)} \cdot \frac{(2x-y)(2x+y)}{8x^2} = \\
& = \frac{-2x}{8x^2} = -\frac{1}{4x} \quad x \neq \pm \frac{y}{2} \quad x \neq 0
\end{aligned}$$