

$$\begin{aligned}
 & \frac{0-8}{1} \cdot \frac{1}{b-3} - \frac{6b}{b^2-9} \left(\frac{1}{b-2} - \frac{2}{b^2-2b} \right) = \\
 & = \frac{1}{b-3} - \frac{6b}{b^2-9} \left(\frac{1}{b-2} - \frac{2}{b(b-2)} \right) = \\
 & \frac{1}{b-3} - \frac{6b}{b^2-9} \left(\frac{b}{b-2} - \frac{2}{b(b-2)} \right) = \frac{1}{b-3} - \frac{6b}{b^2-9} \cdot \frac{b-2}{b(b-2)} = \\
 & = \frac{\cancel{b^3}}{b-3} - \frac{6}{b^2-9} = \frac{b+3-6}{b^2-9} = \frac{\cancel{b-3}}{(b-3)(b+3)} = \frac{1}{b+3} \\
 & b = \frac{1}{2} \quad \frac{1}{\frac{1}{2}+3} = \frac{1}{7/2} = \boxed{\frac{2}{7}}
 \end{aligned}$$

$$\begin{aligned}
 2. \quad & \left(\frac{a-1}{a+1} + \frac{1}{a-1} \right)^2 : \frac{a^4}{a^2-2a+1} = \left(\frac{a^2-1+1}{a-1} \right)^2 : \frac{a^4}{(a-1)^2} = \\
 & = \frac{a^4}{(a-1)^2} : \frac{a^4}{(a-1)^2} = \underline{1} \quad \text{we substitute } a = \underline{2}
 \end{aligned}$$

$$\begin{aligned}
 & \left(\frac{y-4}{3y-3} + \frac{1}{y-1} \right) : \frac{y+1}{3} + \frac{2}{y^2-1} = \\
 & = \left[\frac{y-4}{3(y-1)} + \frac{1}{y-1} \right] : \frac{y+1}{3} + \frac{2}{y^2-1} = \\
 & = \frac{y-4+3}{3(y-1)} : \frac{y+1}{3} + \frac{2}{y^2-1} = \\
 & = \frac{y-1}{3(y-1)} : \frac{y+1}{3} + \frac{2}{y^2-1} = \frac{\cancel{y-1}}{3} : \frac{y+1}{3} + \frac{2}{y^2-1} = \\
 & = \frac{y-1+2}{(y+1)(y-1)} = \frac{y-1}{(y+1)(y-1)} = \frac{1}{y+1} \\
 & \text{when } y = \frac{1}{3} \quad \frac{1}{y+1} = \frac{1}{\frac{1}{3}+1} = \frac{1}{4/3} = \frac{3}{4} \text{ or } 0.75
 \end{aligned}$$