

$$\begin{aligned} \#20) \quad f(x) &= \frac{x-2}{2x-1} \\ y &= \frac{x-2}{2x-1} \\ 2y^{-1} (x = \frac{y-2}{2y-1}) \\ (2y-1)x &= y-2 \\ 2yx-x &= y-2 \\ 2yx-y &= x-2 \\ y(2x-1) &= x-2 \\ \frac{y(2x-1)}{(2x-1)} &= \frac{x-2}{(2x-1)} \\ y &= \frac{x-2}{2x-1} \\ f^{-1}(x) &= \frac{x-2}{2x-1} \end{aligned}$$

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$$\begin{aligned} (f \circ f^{-1})(x) &= \left(\frac{x-2}{2x-1} \right) - \frac{2}{1} \\ &= \frac{\frac{2}{1} \left(\frac{x-2}{2x-1} \right) - \frac{1}{1}}{\frac{x-2-2(2x-1)}{2x-1}} \\ &= \frac{\frac{2x-4}{2x-1} - \frac{1}{1}}{\frac{x-2-2(2x-1)}{2x-1}} \\ &= \frac{\frac{2x-4}{2x-1} - \frac{1}{1}}{\frac{x-4-2(2x-1)}{2x-1}} \\ &= \frac{\frac{2x-4}{2x-1} - \frac{1}{1}}{\frac{x-4-4x+2}{2x-1}} \\ &= \frac{\frac{2x-4}{2x-1} - \frac{1}{1}}{\frac{-3x-2}{2x-1}} \\ &= \frac{-3x}{2x-1} \cdot \frac{2x-1}{-3x-2} = x \end{aligned}$$

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$$\begin{aligned} \frac{1}{a^{-m}} &= \frac{a^m}{1} = a^m \\ \frac{1}{a^m} &= \frac{1}{1} \cdot \frac{a^m}{1} = a^m \end{aligned}$$

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