

$$\begin{aligned}
& \textcircled{7} \int \frac{\sqrt{x+1} + 1}{\sqrt{x+1} - 1} dx = \int \frac{(\sqrt{x+1} + 1)^2}{x+1 - 1} dx = \\
& = \int \frac{x+1 + 2\sqrt{x+1} + 1}{x} dx = \int \frac{x+2+2\sqrt{x+1}}{x} dx = \\
& = \int \left( 1 + \frac{2}{x} + \frac{2\sqrt{x+1}}{x} \right) dx = \left. \begin{array}{l} \sqrt{x+1} = \Delta \\ x+1 = \Delta^2 \\ x = \Delta^2 - 1 \\ dx = 2\Delta d\Delta \end{array} \right| = \\
& = x + 2 \ln|x| + \int \frac{2\Delta}{\Delta^2 - 1} \cdot 2\Delta d\Delta = \\
& = x + 2 \ln|x| + 4 \int \frac{(\Delta^2 - 1) + 1}{\Delta^2 - 1} d\Delta = \\
& = x + 2 \ln|x| + 4 \int \left( 1 + \frac{1}{\Delta^2 - 1} \right) d\Delta =^*
\end{aligned}$$

$$\frac{1}{(\Delta+1)(\Delta-1)} = \frac{A}{\Delta+1} + \frac{B}{\Delta-1} \quad | \cdot (\Delta+1)(\Delta-1)$$

$$1 = A(\Delta-1) + B(\Delta+1)$$

$$\Delta=1: 1 = 2B \Rightarrow B = \frac{1}{2}$$

$$\Delta=-1: 1 = -2A \Rightarrow A = -\frac{1}{2}$$

$$=^* x + 2 \ln|x| + 4 \cdot \left( 1 + \frac{-\frac{1}{2}}{\Delta+1} + \frac{\frac{1}{2}}{\Delta-1} \right) d\Delta =$$

$$= x + 2 \ln|x| + 4\Delta - 2 \ln|\Delta+1| + 2 \ln|\Delta-1| =$$

$$= x + 2 \ln|x| + 4\sqrt{x+1} - 2 \ln(\sqrt{x+1} + 1) + 2 \ln|\sqrt{x+1} - 1| + C$$