

$$\begin{aligned} (3) \quad & \left((x-2)\sqrt[3]{x+1} \right)' \\ &= (x-2)' \sqrt[3]{x+1} + (x-2) (\sqrt[3]{x+1})' \\ &= \sqrt[3]{x+1} + \frac{x-2}{3\sqrt[3]{(x+1)^2}} \\ &= \frac{4x+1}{3\sqrt[3]{(x+1)^2}} \end{aligned}$$