

$$\frac{2.62}{104} \quad \int_{-3}^{-2} \frac{x^3}{x+1} dx = \int_{-3}^{-2} \frac{x^3 + 1 - 1}{x+1} dx = \int_{-3}^{-2} \frac{x^3 + 1}{x+1} dx = \int_{-3}^{-2} \frac{1}{x+1} dx = \int_{-3}^{-2} \frac{(x+1)(x^2 - x + 1)}{x+1} dx - \ln|x+1| \Big|_{-3}^{-2}$$

$$= \left[\frac{x^3}{3} - \frac{x^2}{2} + x - \ln|x+1| + \ln 2 \right]_{-3}^{-2} = \left(-\frac{8}{3} - 2 - 2 \right) - \left(-\frac{27}{3} - \frac{9}{2} - 3 \right) + \ln 2 = 9\frac{5}{6} + \ln 2$$