



$$\begin{aligned} & \int_0^3 f(x) dx \\ &= \int_0^1 \sqrt{1-x^2} dx + \int_1^2 2 dx + \int_2^3 (x-2) dx \\ &= \frac{\pi}{4} + 2 + \frac{1}{2} \approx 3.035 \end{aligned}$$