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Questão 01

$$\int \sin(x+1)^3 \cdot \frac{1}{2} dt = \int \frac{\sin(x+1)^3}{2} dt = \int \frac{\sin^3 t}{2} dt$$

$$\frac{1}{2} \int \sin^3 t dt = \frac{1}{2} \int \sin t^2 \sin t dt$$

$$\frac{1}{2} \int \sin t^2 \sin t \cdot \frac{1}{-\sin t} du = \frac{1}{2} \int -\sin t^2 du$$

$$\frac{1}{2} \int -(1 - \cos t^2) du = \frac{1}{2} \int -(1 - u^2) du$$

$$\frac{1}{2} \int -1 + u^2 du = \frac{1}{2} \left(-\int 1 du + \int u^2 du \right)$$

$$\frac{1}{2} \left(-u + \frac{u^{2+1}}{2+1} \right) = \frac{1}{2} \left(-u + \frac{u^3}{3} \right)$$

$$\frac{1}{2} \left(-\cos t + \frac{\cos t^3}{3} \right) = \frac{1}{2} \left(-\cos(x+1) + \frac{\cos(x+1)^3}{3} \right)$$

$$-\frac{1}{2} \cdot \cos(x+1) + \frac{1}{2} \cdot \frac{\cos(x+1)^3}{3}$$

$$-\frac{\cos(x+1)}{2} + \frac{\cos(x+1)^3}{3} + C$$