$$\int \frac{dx}{(x^3+1)^2} = \int \frac{dx}{(x+1)^2(x^2-x+1)^2}$$

$$= \int -\frac{2x-3}{9(x^2-x+1)} - \frac{x-1}{3(x^2-x+1)^2} + \frac{2}{9(x+1)} + \frac{1}{9(x+1)^2}$$

$$= -\frac{1}{9} \cdot \left\{ \ln(x^2-x+1) - \frac{4}{\sqrt{3}} \operatorname{arctg}\left(\frac{2x-1}{\sqrt{3}}\right) \right\}$$

$$-\frac{1}{3} \cdot \left\{ -\frac{2}{3\sqrt{3}} \operatorname{arctg}\left(\frac{2x-1}{\sqrt{3}}\right) - \frac{x+1}{3(x^2-x+1)} \right\}$$

$$+\frac{2}{9} \ln|x+1| - \frac{1}{9} \frac{1}{x+1}, \quad x \in (-\infty, -1) \cup (-1, +\infty).$$