

$$(4) \int \frac{x^3 + 2x^2 + x + 1}{x^4 + x^2} dx$$

$$= \int \left(\frac{1}{x} + \frac{1}{x^2} + \frac{1}{x^2+1} \right) dx$$

$$= \int \frac{1}{x} dx + \int \frac{1}{x^2} dx + \int \frac{1}{x^2+1} dx$$

$$= \ln|x| + \left(-\frac{1}{x}\right) + \arctan x + C$$

$$= \boxed{\ln|x| - \frac{1}{x} + \arctan x + C}$$