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Mat 1575

Test #1 Version C

Problem #2

Evaluate the integral

$$\int \frac{x^3 + 1}{6x^2} dx$$

$$\frac{1}{6} \times \int \frac{x^3 + 1}{x^2} dx$$

$$\frac{1}{6} \times \int \frac{x^3}{x^2} + \frac{1}{x^2} dx$$

$$\frac{1}{6} \times \int x + \frac{1}{x^2} dx$$

$$\frac{1}{6} \times \left(\int x dx + \int \frac{1}{x^2} dx \right)$$

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

$$\frac{1}{6} \times \left(\frac{x^2}{2} + \int \frac{1}{x^2} dx \right)$$

$$\frac{1}{6} \times \left(\frac{x^2}{2} - \frac{1}{x} \right)$$

$$\frac{x^2}{12} - \frac{1}{6x}$$

$$\boxed{\frac{x^2}{12} - \frac{1}{6x} + C}$$