Integrate the function $f(x, y) = x^2 + y^2$ over the region bounded by the curves $y = x^2$ and $y = x$.

$$\int_0^1 \int_{x^2}^{x} (x^2 + y^2)\, dy\, dx = \int_0^1 \left(x^2 y + \frac{y^3}{3} \right) \Big|_{y=x^2}^{y=x} dx = \int_0^1 \left(x^3 - x^4 + \frac{x^3}{3} - \frac{x^6}{3} \right) dx$$

Input: Indefinite INTEGRAL $(x^3 - x^4 + \frac{x^3}{3} - \frac{x^6}{3})$ dx

Result:

Form: Indefinite Integral for INT

Indefinite integral:

$$\int \left(x^3 - x^4 + \frac{x^3}{3} - \frac{x^6}{3} \right) dx = \frac{x^4}{4} - \frac{x^5}{5} + \frac{x^3}{9} - \frac{x^7}{21} + C$$

Alternate form:

$$\frac{1}{21}(-3x^7 + 7x^4 - 5x^5 + 3x^3) + C$$

Alternate form assuming x real:

$$\frac{1}{21}(-3x^7 + 7x^4 - 5x^5 + 3x^3) + C$$

Alternate form assuming x real and C real:

$$\frac{1}{21}(-3x^7 + 7x^4 - 5x^5 + 3x^3) + C$$

Alternate form assuming x real and C real and $x > 0$:

$$\frac{1}{21}(-3x^7 + 7x^4 - 5x^5 + 3x^3) + C$$

Alternate form assuming x real and C real and $x < 0$:

$$\frac{1}{21}(-3x^7 + 7x^4 - 5x^5 + 3x^3) + C$$

Alternate form assuming x real and C real and $x > 1$:

$$\frac{1}{21}(-3x^7 + 7x^4 - 5x^5 + 3x^3) + C$$

Alternate form assuming x real and C real and $x < 1$:

$$\frac{1}{21}(-3x^7 + 7x^4 - 5x^5 + 3x^3) + C$$

Alternate form assuming x real and C real and $x > -1$:

$$\frac{1}{21}(-3x^7 + 7x^4 - 5x^5 + 3x^3) + C$$

Alternate form assuming x real and C real and $x < -1$:

$$\frac{1}{21}(-3x^7 + 7x^4 - 5x^5 + 3x^3) + C$$