$$\int x^4 \sin(x^5)\, dx$$

Solution

Let $u = x^5$ so $du = 5x^4\, dx$. Then

$$\int x^4 \sin(x^5)\, dx = \frac{1}{5}\int \sin(u)\, du = -\frac{1}{5}\cos u + C = -\frac{1}{5}\cos(x^5) + C.$$