

**Integral 93**

$$\int x^4 \cos x \, dx$$

$$\text{Por partes: } \begin{array}{l} x^4 = U \Rightarrow dU = 4x^3 \, dx \\ \cos x \, dx = dV \Rightarrow V = \text{sen } x \end{array}$$

$$I = \int x^4 \cos x \, dx = x^4 \text{sen } x - 4 \int x^3 \text{sen } x \, dx$$

↓ (J)

$$\text{Por partes: } \begin{array}{l} x^3 = U \Rightarrow dU = 3x^2 \, dx \\ \text{sen } x \, dx = dV \Rightarrow V = -\cos x \end{array}$$

$$J = \int x^3 \text{sen } x \, dx = -x^2 \cos x + 3 \int x^2 \cos x \, dx$$

↓ (M)

$$\text{Por partes: } x^2 = u \Rightarrow du = 2x \, dx$$

$$\cos x \, dx = dV \Rightarrow V = \text{sen } x$$

$$M = \int x^2 \cos x \, dx = x^2 \text{sen } x - 2 \int x \text{sen } x \, dx$$

↓ (N)

$$\text{Por partes: } x = u \Rightarrow du = dx$$

$$\text{sen } x \, dx = dV \Rightarrow V = -\cos x$$

$$N = -x \cos x + \int \cos x \, dx =$$

$$-x \cos x + \text{sen } x + C$$

$$I = \int x^4 \cos x \, dx =$$

$$x^4 \text{sen } x + 4x^3 \cos x - 12x^2 \text{sen } x - 24x \cos x + 24 \text{sen } x + C$$