

Integración por partes

BytePlanet

$$\int \frac{\ln x}{\sqrt[3]{x}} dx = \int \ln(x) x^{-\frac{1}{3}} dx \quad \int u dv = uv - \int v du$$

$$u = \ln x$$

$$dv = x^{-\frac{1}{3}}$$

$$du = \frac{1}{x} dx$$

$$v = \frac{x^{\frac{2}{3}}}{\frac{2}{3}} = \frac{3x^{\frac{2}{3}}}{2}$$

$$* \sqrt[n]{x} = x^{\frac{1}{n}}$$

$$* \frac{1}{x^n} = x^{-n}$$

$$\int \ln(x) x^{-\frac{1}{3}} dx = \ln x \left(\frac{3x^{\frac{2}{3}}}{2} \right) - \int \frac{3x^{\frac{2}{3}}}{2} \cdot \frac{1}{x} dx$$

$$\int \ln(x) x^{-\frac{1}{3}} dx = \frac{3 \ln(x) x^{\frac{2}{3}}}{2} - \frac{3}{2} \int \frac{x^{\frac{2}{3}}}{x} dx$$

$$\int \ln(x) x^{-\frac{1}{3}} dx = \frac{3 \ln(x) x^{\frac{2}{3}}}{2} - \frac{3}{2} \int x^{-\frac{1}{3}} dx$$

$$\int x^{-\frac{1}{3}} dx = \frac{3x^{\frac{2}{3}}}{2}$$

$$\int \ln(x) x^{-\frac{1}{3}} dx = \frac{3 \ln(x) x^{\frac{2}{3}}}{2} - \frac{3}{2} \left[\frac{3}{2} x^{\frac{2}{3}} \right]$$

$$\int \ln(x) x^{-\frac{1}{3}} dx = \frac{3 \ln(x) x^{\frac{2}{3}}}{2} - \frac{9}{4} x^{\frac{2}{3}} + C$$