Integral Indefinida - Cambio de variable

Bit Planet

Solución

$$\int (2x-1)^{\frac{1}{2}}\,dx$$

$u = 2x-1$

$du = 2x^0 - 0\,dx = 2\,dx$

$du = 2\,dx$

$\frac{du}{2} = dx$

$$\int (u)^{\frac{1}{2}}\,\frac{du}{2} = \int \frac{(u)^{\frac{1}{2}}}{2}\,du$$

$$= \frac{1}{2}\int (u)^{\frac{1}{2}}\,du$$

$$= \frac{1}{2}\,\frac{u^{\frac{1}{2}+\frac{2}{2}}}{\frac{1}{2}+\frac{2}{2}} + C = \frac{1}{2}\,\frac{u^{\frac{3}{2}}}{\frac{3}{2}} + C$$

$$= \frac{1}{2}\,\frac{2}{3}\,u^{\frac{3}{2}} + C = \frac{2}{6}\,u^{\frac{3}{2}} + C = \frac{1}{3}\,u^{\frac{3}{2}} + C$$

$$= \frac{1}{3}\,(2x-1)^{\frac{3}{2}} + C$$

* $\frac{d}{dx}\,x^n = nx^{n-1}$
* $\frac{d}{dx}\,c = 0$
* $\int x^n$
* $\int x^n = \frac{x^{n+1}}{n+1}$
* $u = 2x-1$