• $\int \sqrt{1-x^2}\,dx$; Utilizar C.V.

Prueba de C.V. $1-x^2 = t^2$ Más complicado

$x = \sqrt{1-t^2}$ X

$dx = \frac{-2t}{2\sqrt{1-t^2}}\,dt$

C.V: $x = \operatorname{sen} t$, $dx = \cos t\,dt$ $\int \sqrt{1-x^2}\,dx =$

$= \int \sqrt{1-\operatorname{sen}^2 t}\cdot \cos t\,dt = \int \cos t \cdot \cos t\,dt = \circledast$

$\operatorname{sen}^2 t + \cos^2 t = 1 \Rightarrow \cos t = \sqrt{1-\operatorname{sen}^2 t}$

$\circledast = \int \cos^2 t\,dt = \int \left(\frac{1+\cos 2t}{2}\right)dt = \int \left(\frac{1}{2} + \frac{1}{2}\cos 2t\right)dt = \circledast$

$\cos^2 t = \frac{1+\cos 2t}{2}$

$\circledast = \frac{1}{2}t + \frac{1}{2}\int \cos 2t\,dt = \frac{1}{2}t + \frac{1}{2}\frac{1}{2}\int 2\cos 2t\,dt =$

$\int f'(x)\cdot \cos f(x)\,dx = \operatorname{sen} f(x) + C$

$= \frac{1}{2}t + \frac{1}{4}\operatorname{sen} 2t + C =$

$= \frac{1}{2}\operatorname{arc\,sen} x + \frac{1}{4}\operatorname{sen}(2\operatorname{arc\,sen} x) + C$

$x = \operatorname{sen} t \Rightarrow t = \operatorname{arc\,sen} x$