INTEGRAIS TRIGONOMÉTRICAS

Sabemos que:

- [sen x] ' = cos x
- [cos x] ' = - sen x
- [tg x] ' = $\sec^2$ x
- [cotg x] ' = - cossec^2 x
- [sec x] ' = sec x · tg x
- [cossec x] ' = - cossec x · tg x

Assim,

- $\int \text{sen}\, x\, dx = -\cos x + k$
- $\int \cos x\, dx = \text{sen}\, x + k$
- $\int \sec^2 x\, dx = tg\ x + k$
- $\int \text{cossec}^2 x\, dx = -\cot g\ x + k$
- $\int \sec x \cdot \text{tg}\, x\ dx = \sec x + k$
- $\int \text{cossec}\, x \cdot \text{cotg}\, x\ dx = -\text{cossec}\, x + k$

I – INTEGRAÇÃO POR SUBSTITUÇÃO

a) $\int \frac{2x}{x^2+1} dx$ $\qquad R: \ln\left(x^2+1\right) + c$

b) $\int \cos(2x) dx$ $\qquad R: \frac{1}{2}\text{sen}(2x) + c$

c) $\int \sqrt{1+y^2}\, 2y dy$ $\qquad R: \frac{2}{3}\left(1+y^2\right)^{3/2} + c$

d) $\int x^2\, \text{sen}\left(x^3\right) dx$ $\qquad R: -\frac{1}{3}\cos\left(x^3\right) + c$

e) $\int \frac{(\ln x)^2}{x} dx$ $\qquad R: \frac{(\ln x)^3}{3} + c$

f) $\int x\left(2x^2+3\right)^{10} dx$ $\qquad R: \frac{1}{44}\left(2x^2+3\right)^{11} + c$

g) $\int \frac{x}{\left(x^2+5\right)^3} dx$ $\qquad R: -\frac{1}{4}\left(x^2+5\right)^{-2} + c$