INTEGRALI

17 mar '21

- $D(\ln x) = 1/x \quad \Rightarrow \quad \int 1/x \, dx = \ln|x| + K$
  $x > 0$ $\quad x \neq 0$ $\quad x \neq 0$ $\quad x \neq 0$

- $D e^x = e^x \Rightarrow \int D e^x \, dx = \int e^x dx$

  $$\int e^x dx = e^x + K$$

- $D a^x = a^x \ln a \Rightarrow \int D a^x dx = \int a^x \ln a \, dx$

  $$\int a^x dx = \frac{1}{\ln a} a^x + K$$

- $D(\operatorname{sen} x) = \cos x \Rightarrow \int D(\operatorname{sen} x) dx = \int \cos x dx$

  $$\int \cos x dx = \operatorname{sen} x + K$$

→ $D(\cos x) = -\operatorname{sen} x \Rightarrow -\int \operatorname{sen} x\, dx = \int D(\cos x)\, dx$

$$\int \operatorname{sen} x\, dx = -\cos x + K$$

→ $D(\operatorname{tg} x) = \dfrac{1}{\cos^2 x} \Rightarrow \displaystyle\int \frac{1}{\cos^2 x}\, dx = \int D(\operatorname{tg} x)\, dx$

$$\int \frac{1}{\cos^2 x}\, dx = \operatorname{tg} x + K$$

→ $D(\operatorname{cotg} x) = -\dfrac{1}{\operatorname{sen}^2 x} \Rightarrow -\displaystyle\int \frac{1}{\operatorname{sen}^2 x}\, dx = \int D(\operatorname{cotg} x)\, dx$

$$\int \frac{1}{\operatorname{sen}^2 x}\, dx = -\operatorname{cotg} x + K$$

→ $D(\operatorname{arcsen} u) = \dfrac{1}{\sqrt{1-u^2}} \Rightarrow \displaystyle\int \frac{1}{\sqrt{1-u^2}}\,du = \int D(\operatorname{arcsen} u)\,du$

$$\int \frac{1}{\sqrt{1-u^2}}\,du = \operatorname{arcsen} u + K$$

→ $D(\operatorname{arctan} u) = \dfrac{1}{1+u^2} \Rightarrow \displaystyle\int \frac{1}{1+u^2}\,du = \int D(\operatorname{arctan} u)\,du$

$$\int \frac{1}{1+u^2}\,du = \operatorname{arctan} u + K$$