17/03/21 **INTEGRAZIONE IMMEDIATA** P1878

$\int \frac{1}{x}\,dx = \ln|x| + K$ $\quad y = x^{-1}$ $\quad D\ln x = \frac{1}{x}$ $\quad (C.E\ x>0)$ $\quad \int \frac{1}{x}\,dx = \ln x + K$ ($\frac{1}{x}$: $x\neq 0$; $\ln x$: $x>0$)

$\int \frac{1}{x}\,dx = \ln|x| + K$ → entrambi i C.E sono $x\neq 0$

$\int e^x\,dx = e^x + K$ $\quad De^x = e^x$ $\quad \int De^x\,dx = \int e^x\,dx$ $\quad \int e^x\,dx = e^x + K$

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

$a^x + K = \ln a \int a^x\,dx$

$\int \frac{1}{\sqrt{1-x^2}}\,dx = \arcsin x + K$ $\quad D\arcsin x = \frac{1}{\sqrt{1-x^2}}$ $\quad \int D\arcsin x = \int \frac{1}{\sqrt{1-x^2}}$

106 p 1900 → forza tutti

$$\int e^{x+2}\,dx = \int e^2 \cdot e^x\,dx$$ (e^2: è un numero)

$$= e^2 \int e^x dx = e^2 e^x + K = e^{x+2} + K$$

109

$$\int 2^{4x} \cdot 4^{1-2x} dx = \int 2^{4x} \cdot 2^{2-4x}\,dx = 4\int 1\,dx = 4x + k$$

116 $$\int \left(2-3^x\right)^2 dx = \int 4 + 3^{2x} - 4 3^x\,dx = 4\int dx - 4\int 3^x dx + \int 3^{2x} dx =$$

$$= 4x - 4\frac{3^x}{\ln 3} + \int 9^x = 4x - 4\frac{3^x}{\ln 3} + \frac{9^x}{\ln 9} + K$$

n° 131 p 1901

$$\int \frac{5\sin x + 2\sin 2x}{\sin x}\,dx = \int \frac{\sin x\,(5 + 4\cos x)}{\sin x}\,dx = \int (5 + 4\cos x)\,dx = 5x + 4\sin x + K$$

133

$$\int \frac{\cos 2x}{4\cos^2 x}\,dx = \frac{\cos^2 x - \sin^2 x}{4\cos^2 x}\,dx = \frac{\cos^2 x - 1 + \cos^2 x}{4\cos^2 x} = \frac{1}{2} - \frac{1}{\cos^2 x} = \int \frac{1}{2} - \frac{1}{4}\frac{1}{\cos^2 x}\,dx =$$ (D tan x)

$$= \frac{1}{2}x - \frac{1}{4}\tan x + K$$

132 $$\int \tan^2 x\,dx = \int \frac{\sin^2 x}{\cos^2 x}\,dx = \frac{1-\cos^2 x}{\cos^2 x} = \int \frac{1}{\cos^2 x} - 1\,dx = \tan x - x + K$$

* $$\int \frac{1}{\cos^2 \cdot \sin^2 x}\,dx = \int \frac{\sin^2 x + \cos^2 x}{\cos^2 x \sin^2 x}\,dx = \int \frac{1}{\cos^2 x} + \frac{1}{\sin^2 x}\,dx = \tan x - \cot\tan x + K$$