

$$\int \frac{\sqrt{1+x}}{\sqrt{1-x}} dx =$$

INT-S1-011

$$= \int \frac{\sqrt{1+x}}{\sqrt{1-x}} \cdot \frac{\sqrt{1+x}}{\sqrt{1+x}} dx =$$

$$= \int \frac{1+x}{\sqrt{(1-x)(1+x)}} dx =$$

$$= \int \frac{1+x}{\sqrt{1-x^2}} dx =$$

$$= \int \frac{1}{\sqrt{1-x^2}} + \frac{x}{\sqrt{1-x^2}} dx =$$

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

TIPO $\int \frac{f'(x)}{2\sqrt{f(x)}} dx = \sqrt{f(x)} + k$

SOSTITUZIONE: $1-x^2 = z$

NON ESPlicito x

$$z = 1-x^2$$

$$z' = \frac{dz}{dx} = -2x \rightarrow dx = \frac{1}{-2x} dz$$

$$= \arcsin x + \int \frac{x}{\sqrt{z}} \frac{1}{-2x} dz =$$

$$= \arcsin x - \int \frac{1}{2\sqrt{z}} dz = \arcsin x - \sqrt{z} + k =$$

$$= \boxed{\arcsin x - \sqrt{1-x^2} + k}$$