

Esercizi sul calcolo di integrali la cui primitiva è una funzione composta

$$1) \int x\sqrt{x^2 + 1} dx = \frac{1}{2} \int 2x(x^2 + 1)^{\frac{1}{2}} dx = \frac{1}{2} \frac{(x^2 + 1)^{\frac{3}{2}}}{\frac{3}{2}} + c$$

$$2) \int \frac{e^x}{1+e^{2x}} dx = \int \frac{e^x}{1+(e^x)^2} dx = \arctg(e^x) + c$$

$$3) \int (x + 1)^5 dx = \frac{(x+1)^6}{6} + c$$

$$4) \int \text{sen}2x dx = \frac{1}{2} \int 2\text{sen}2x dx = -\frac{1}{2} \cos2x + c$$

$$5) \int e^{1-3x} dx = -\frac{1}{3} \int -3e^{1-3x} dx = -\frac{1}{3} e^{1-3x} + c$$

$$6) \int \frac{3x}{\sqrt{1-x^2}} dx = \int 3x(1-x^2)^{-\frac{1}{2}} dx = 3 \cdot \left(-\frac{1}{2}\right) \int -2x(1-x^2)^{-\frac{1}{2}} dx = -\frac{3}{2} 2\sqrt{1-x^2} + c$$

$$7) \int \left(\frac{2}{1+x^2} - 3e^{2x}\right) dx = 2\arctgx - 3 \cdot \frac{1}{2} \int 2e^{2x} dx = 2\arctgx - \frac{3}{2} e^{2x} + c$$

$$8) \int \frac{x^2+3}{x^2+1} dx = x + 2\arctgx + c$$