

CALCOLARE IL SEGUENTE INTEGRALE

$$\int \left(\frac{4-x^2}{3x^4} + \frac{2x}{\sqrt{4-3x^2}} \right) dx$$

$$\int \frac{4-x^2}{3x^4} dx + \int \frac{2x}{\sqrt{4-3x^2}} dx = \int \frac{4}{3x^4} dx - \int \frac{x^2}{3x^4} dx$$

$$+ \int \frac{2x}{(4-3x^2)^{1/2}} dx = \frac{4}{3} \int x^{-4} dx - \frac{1}{3} \int x^{-2} dx + 2 \int x (4-3x^2)^{-1/2} dx$$

$$= \frac{4}{3} \frac{x^{-4+1}}{-4+1} - \frac{1}{3} \frac{x^{-2+1}}{-2+1} + \frac{2}{6} \int -6x (4-3x^2)^{-1/2} dx =$$

$$= -\frac{4}{9x^3} + \frac{1}{3x} - \frac{1}{3} \frac{(4-3x^2)^{-1/2+1}}{-\frac{1}{2}+1} + C =$$

$$= -\frac{4}{9x^3} + \frac{1}{3x} - \frac{2}{3} \sqrt{4-3x^2} + C = \frac{1}{3} \left(-\frac{4}{3x^3} + \frac{1}{x} - 2\sqrt{4-3x^2} \right) + C$$