

Esercitazione sugli integrali

Indefiniti e definiti

Calcolare i seguenti integrali

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| 1) $\int \frac{x^2-1}{3x-1} dx$ | $\frac{1}{6}x^2 + \frac{1}{9}x - \frac{8}{27}\log 3x-1 + C$ |
| 2) $\int \frac{2x^3-4x+1}{2x-3} dx$ | $\frac{1}{3}x^3 + \frac{3}{4}x^2 + \frac{1}{4}x + \frac{7}{8}\log 2x-3 + C$ |
| 3) $\int \frac{4x+1}{2x^2-x-3} dx$ | $\frac{3}{5}\log x+1 + \frac{7}{5}\log\left x-\frac{3}{2}\right + C$ |
| 4) $\int \frac{8x+3}{x^2+6x+9} dx$ | $8\log x+3 + \frac{21}{x+3} + C$ |
| 5) $\int \frac{x-7}{4x^2+12x+9} dx$ | $\frac{1}{4}\log 2x+3 + \frac{17}{2(2x+3)} + C$ |
| 6) $\int \frac{3x-5}{3x^2-5x-8} dx$ | $\frac{8}{11}\log x+1 + \frac{3}{11}\log\left x-\frac{8}{3}\right + C$ |
| 7) $\int \frac{x^2+1}{x^2-4x-5} dx$ | $x - \frac{1}{3}\log x+1 + \frac{13}{3}\log x-5 + C$ |
| 8) $\int x\sqrt{x+1} dx$ (porre $\sqrt{x+1}=t$) | $\frac{2}{5}(x+1)^{\frac{5}{2}} - \frac{2}{3}(x+1)^{\frac{3}{2}} + C$ |
| 9) $\int_{-1}^0 -x\sqrt{x+1} dx = \frac{4}{15}$ | |
| 10) $\int xe^{-2x} dx$ (con il metodo di integrazione per parti) | $e^{-2x}\left(-\frac{1}{2}x - \frac{1}{4}\right) + \frac{1}{4} + C$ |
| 11) $\int_0^{+\infty} xe^{-2x} dx = \frac{1}{4}$ | |
| 12) $\int \frac{x+1}{\sqrt[3]{x^2}} dx$ | $\frac{3}{4}x^{\frac{4}{3}} + 3x^{\frac{1}{3}} + C$ |
| 13) $\int_0^1 \frac{x+1}{\sqrt[3]{x^2}} dx = \frac{15}{4}$ | |