

TUTORATO
DEL 9\12\2022

1) Calcolare i seguenti integrali indefiniti

(i) $\int 8\sqrt{x} dx$

(ii) $\int \frac{3-x^2}{x^4} dx$

(iii) $\int e^x(1-2xe^{-x})dx$

(iv) $\int \frac{\sin x}{3} - 5\cos x dx$

(v) $\int \tan^2 x dx$

(vi) $\int \cos^2 x \sin x dx$

(vii) $\int \frac{\log^3 x}{x} dx$

(viii) $\int \frac{x^2}{x^3+2} dx$

(ix) $\int x \cos(x^2) dx$

(x) $\int \frac{1+e^{\sqrt{x}}}{\sqrt{x}} dx$

(xi) $\int \frac{2\arctan x + 1}{x^2+1} dx$

(xii) $\int (x+2)\sin x dx$

(xiii) $\int \arctan x dx$

(xiv) $\int \frac{x}{1+x^2} dx$

(xv) $\int \frac{x}{1+x^4} dx$

(xvi) $\int \frac{x^4+x^3+6}{x^2+x} dx$

(xvii) $\int \frac{x^2-x+1}{x^2-2x+1} dx$

(xviii) $\int \frac{1}{9x^2+5-6x} dx$

(xix) $\int \frac{x^2-3x}{x^2-6x+8} dx$

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

2) Calcola i seguenti integrali definiti

$$(i) \int_0^1 x^3 (x^4 + 1)^5 dx$$

$$(ii) \int_0^1 \frac{x^2}{x^3 + 1} dx$$

$$(iii) \int_0^1 \frac{e^x}{e^{2x} + 1} dx$$

$$(iv) \int_{\pi/6}^{\pi/3} 2 \operatorname{tg} x \, dx$$

$$(v) \int_1^3 3x^2 \log x \, dx$$