

Resultado das Integrais da Oitava Lista

MAT0111 – Cálculo Diferencial e Integral I

Prof. Daniel Victor Tausk

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Seguem os resultados das integrais do Exercício 1 da oitava lista:

- (a) $\int \sin^6 x \cos^5 x \, dx = \frac{1}{7} \sin^7 x - \frac{2}{9} \sin^9 x + \frac{1}{11} \sin^{11} x;$
- (b) $\int \sin^3 x \, dx = \frac{1}{3} \cos^3 x - \cos x;$
- (c) $\int \frac{x^4 + x^2 + 1}{x^3 - 3x^2 - x + 3} \, dx = \frac{x^2}{2} + 3x - \frac{3}{4} \ln|x - 1| + \frac{91}{8} \ln|x - 3|$
 $+ \frac{3}{8} \ln|x + 1|;$
- (d) $\int \sec^3 x \, dx = \frac{1}{2} (\sec x \operatorname{tg} x + \ln|\sec x + \operatorname{tg} x|);$
- (e) $\int \frac{1}{x^2 + 1} \, dx = \operatorname{arctg} x;$
- (f) $\int x \operatorname{arctg} x \, dx = \frac{1}{2} ((x^2 + 1) \operatorname{arctg} x - x);$
- (g) $\int (7x^6 + 15x^2 + 1) \ln(x^7 + 5x^3 + x) \, dx$
 $= (x^7 + 5x^3 + x)(\ln(x^7 + 5x^3 + x) - 1).$