Lista de exercícios 8
Cálculo I

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Entrega: Sexta-feira 21/06/2019

1. Calcule

(a) $\int x \operatorname{sen} x^2 \, dx$

(b) $\int \operatorname{sen}^5 x \cos x \, dx$

(c) $\int x^3 \cos x^4 \, dx$

(d) $\int \dfrac{2}{x+3} \, dx$

(e) $\int x \sqrt{1+3x^2} \, dx$

(f) $\int x e^{-x^2} \, dx$

(g) $\int \operatorname{sen} x \sqrt{\cos x} \, dx$

(h) $\int \operatorname{sen} x \sec^3 x \, dx$

(i) $\int \dfrac{x}{x+1} \, dx$

(j) $\int \dfrac{x+2}{x-1} \, dx$

(k) $\int \dfrac{x^2}{x+1} \, dx$

2. Calcule, realizando a mudança de variável $u = g(x)$.

(a) $\int \dfrac{x^3}{(16+x^4)^3} \, dx$

(b) $\int \dfrac{x^3}{16+x^4} \, dx$

(c) $\int \dfrac{x}{16+x^4} \, dx$

(d) $\int \dfrac{1}{x \ln x} \, dx$

(e) $\int \dfrac{1}{x(\ln x)^2} \, dx$

(f) $\int \dfrac{1}{\sqrt{1-x^2}} \, dx$

(g) $\int \dfrac{e^x}{\sqrt{1-e^{2x}}} \, dx$

3. Calcule, através do método de integração por partes

(a) $\int x e^x \, dx$

(b) $\int x \operatorname{sen} x \, dx$

(c) $\int x^2 e^x \, dx$

(d) $\int x \ln x \, dx$

(e) $\int x \sec^2 x \, dx$

(f) $\int e^x \cos x \, dx$

(g) $\int x^3 \cos(x^2) \, dx$

(h) $\int \operatorname{sen}^4 x \, dx$