Universidade Federal da Paraíba
Departamento de Matemática
Cálculo II
Lista de Exercícios 2
Período 2013 - I

1. Calcular:

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

   (b) $\int y^2 \cos y\, dy$

   (c) $\int x \log x\, dx$

   (d) $\int \arctan s\, ds$

   (e) $\int x sen(2x)\, dx$

   (f) $\int e^{-x} sen(3x)\, dx$

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

   (h) $\int \cos^2 x\, dx$

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

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

   (k) $\int \sqrt{x} \ln x\, dx$

   (l) $\int \frac{\ln x}{\sqrt{x}}\, dx$

   (m) $\int \arctan x\, dx$

2. Calcular:

   (a) $\int \frac{1}{\sqrt{9+y^2}}\, dy$

   (b) $\int \sqrt{25-x^2}\, dx$

   (c) $\int \frac{1}{\sqrt{4x^2-49}}\, dx$

   (d) $\int \frac{3}{\sqrt{1+9x^2}}\, dx$

   (e) $\int \frac{x}{x^2-4x+8}\, dx$

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

3. Calcular:

   (a) $\int \frac{e^x}{\sqrt{e^{2x}+9}}\, dx$

   (b) $\int \frac{2}{\sqrt{x}+4x\sqrt{x}}\, dx$

   (c) $\int \frac{1}{x\sqrt{x^2-1}}\, dx$

   (d) $\int \frac{x}{\sqrt{x^2-1}}\, dx$

4. Decomponha em frações parciais:

   (a) $\frac{x^2}{(x+1)(x^2-3x+4)}$

   (b) $\frac{7+2x^2-x^4}{(x+1)(x-1)^2(x^2+1)}$

(c) $\dfrac{x^2+1}{(x+1)^2(x^2+2x+2)}$

(d) $\dfrac{(x-1)^2}{x^3+x}$

(e) $\dfrac{x+3}{x^3-x^2}$

(f) $\dfrac{2x^2-2x+1}{x^3-2x^2+x}$

5. Calcule a integral de cada uma das funções racionais do Exercício 4.

6. Calcule:

(a) $\displaystyle\int \frac{x+4}{x^3+3x^2-10x}dx$

(b) $\displaystyle\int \frac{x-1}{(x+1)^3}dx$

(c) $\displaystyle\int \frac{e^t}{e^{2t}+3e^t+2}dt$

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

(e) $\displaystyle\int \frac{8x^2+8x+2}{(4x^2+1)^2}dx$

(f) $\displaystyle\int \frac{s^4+81}{s(s^2+9)^2}ds$

(g) $\displaystyle\int \frac{\cos y}{sen^2y+seny-6}dy$

(h) $\displaystyle\int \frac{16x^3}{4x^2-4x+1}dx$

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

(j) $\displaystyle\int \frac{dx}{x(x^2-1)}\,dx$

(k) $\displaystyle\int \frac{e^t}{e^{2t}-4}\,dt$

7. Veja mais exercícios em Thomas, Mounem, Lang, Hovard, Guidorizzi, etc.