Lista 6: Integrais por substituição

Exercícios sobre integrais por substituição

1. Nas questões abaixo calcule a integral fazendo a substituição dada.

   (a) $\displaystyle\int x(4+x^2)^{10}\,dx, \quad u = 4 + x^2$

   (b) $\displaystyle\int \frac{dt}{(1-6t)^4}, \quad u = 1 - 6t$

   (c) $\displaystyle\int e^{\operatorname{sen}\theta}\cos\theta\,d\theta, \quad u = \operatorname{sen}\theta$

2. Calcule a integral indefinida.

   (a) $\displaystyle\int x^2(x^3+5)^9\,dx$

   (b) $\displaystyle\int (3t+2)^{2.4}\,dt$

   (c) $\displaystyle\int \frac{x}{(x^2+1)^2}\,dx$

   (d) $\displaystyle\int e^x \operatorname{sen}(e^x)\,dx$

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

   (f) $\displaystyle\int \sec 2\theta \operatorname{tg} 2\theta\,d\theta$

   (g) $\displaystyle\int \frac{dx}{ax+b} \quad (a \neq 0)$

   (h) $\displaystyle\int \sqrt{x}\operatorname{sen}(1+x^{3/2})\,dx$

   (i) $\displaystyle\int (1+\operatorname{tg}\theta)^5 \sec^2\theta\,d\theta$

   (j) $\displaystyle\int e^{\cos t}\operatorname{sen} t\,dt$