

1. Calcule o integral indefinido.

- (a) $\int (x+3)dx$
- (b) $\int (5-x)dx$
- (c) $\int (2x+3x^2)dx$
- (d) $\int (4x^3+6x^2-1)dx$
- (e) $\int (x^3+2)dx$
- (f) $\int (x^3-4x+2)dx$
- (g) $\int (x^{\frac{2}{3}}+2x+1)dx$
- (h) $\int \left(\sqrt{x}+\frac{1}{2\sqrt{x}}\right)dx$
- (i) $\int \sqrt[3]{x^2} dx$
- (j) $\int \left(\sqrt[4]{x^3}+1\right) dx$
- (k) $\int \frac{1}{x^3}dx$
- (l) $\int \frac{x^2+x+1}{\sqrt{x}}dx$
- (m) $\int \frac{x^2+2x-3}{x^4}dx$
- (n) $\int (x+1)(3x-2)dx$
- (o) $\int (2t^2-1)^2 dt$
- (p) $\int y^2\sqrt{y} dy$
- (q) $\int (1+3t)t^2 dt$

2. Calcule o integral indefinido.

- (a) $\int (2\operatorname{sen}(x)+3\cos(x))dx$
- (b) $\int (t^2-\operatorname{sen}(t))dt$
- (c) $\int (1-\operatorname{cosec}(t)\cotg(t))dt$
- (d) $\int (\theta^2+\sec^2(\theta))d\theta$
- (e) $\int (\sec^2(\theta)-\operatorname{sen}(\theta))d\theta$
- (f) $\int \sec(y)(\operatorname{tg}(y)-\sec(y))dy$

(g) $\int (\operatorname{tg}^2(y)+1)dy$

(h) $\int \frac{\cos(x)}{1-\cos^2(x)}dx$

3. Calcule o integral indefinido.

(a) $\int 5e^{5x}dx$

(b) $\int -4x^3e^{-x^4}dx$

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

(d) $\int \frac{e^{\frac{1}{x^2}}}{x^3}dx$

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

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

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

(h) $\int \frac{e^x+e^{-x}}{e^x-e^{-x}}dx$

(i) $\int \frac{2e^x-2e^{-x}}{(e^x+e^{-x})^2}dx$

(j) $\int \frac{5-e^x}{e^{2x}}dx$

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

(l) $\int e^{-x}\operatorname{tg}(e^{-x})dx$

(m) $\int \ln(e^{2x-1})dx$

4. Calcule o integral indefinido.

(a) $\int \frac{5}{x}dx$

(b) $\int \frac{10}{x}dx$

(c) $\int \frac{1}{x+1}dx$

(d) $\int \frac{1}{x-5}dx$

(e) $\int \frac{1}{3-2x}dx$

(f) $\int \frac{1}{3x+2}dx$

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

- (h) $\int \frac{x^2}{3-x^3} dx$
- (i) $\int \frac{x^2-4}{x} dx$
- (j) $\int \frac{x}{\sqrt{9-x^2}} dx$
- (k) $\int \frac{x^2+2x+3}{x^3+3x^2+9x} dx$
- (l) $\int \frac{x(x+2)}{x^3+3x^2-4} dx$
- (m) $\int \frac{x^2-3x+5}{x-3} dx$
- (n) $\int \frac{2x^2+7x-3}{x-2} dx$
- (o) $\int \frac{x^3-3x^2+5}{x-3} dx$
- (p) $\int \frac{x^3-6x-20}{x+5} dx$
- (q) $\int \frac{x^4+x-4}{x^2+2} dx$
- (r) $\int \frac{x^3-3x^2+4x-9}{x^2+3} dx$
- (s) $\int \frac{(\ln(x))^2}{x} dx$
- (t) $\int \frac{1}{x \ln(x^3)} dx$
- (u) $\int \frac{1}{\sqrt{x+1}} dx$
- (v) $\int \frac{2}{(x-1)^2} dx$

5. Determine o integral.

- (a) $\int \frac{5}{\sqrt{9-x^2}} dx$
- (b) $\int \frac{3}{\sqrt{1-4x^2}} dx$
- (c) $\int \frac{7}{16+x^2} dx$
- (d) $\int \frac{4}{1+9x^2} dx$
- (e) $\int \frac{1}{4+(x-1)^2} dx$
- (f) $\int \frac{x^3}{x^2+1} dx$
- (g) $\int \frac{x^4-1}{x^2+1} dx$

- (h) $\int \frac{1}{\sqrt{1-(x+1)^2}} dx$
- (i) $\int \frac{t}{t^4+16} dt$
- (j) $\int \frac{t}{\sqrt{1-t^4}} dt$
- (k) $\int \frac{e^{2x}}{4+e^{4x}} dx$
- (l) $\int \frac{1}{3+(x-2)^2} dx$
- (m) $\int \frac{x-3}{x^2+1} dx$
- (n) $\int \frac{4x+3}{\sqrt{1-x^2}} dx$
- (o) $\int \frac{x+5}{\sqrt{9-(x-3)^2}} dx$
- (p) $\int \frac{x-2}{(x+1)^2+4} dx$

6. Calcule o integral.

- (a) $\int 3^x dx$
- (b) $\int 5^{-x} dx$
- (c) $\int x 5^{-x^2} dx$
- (d) $\int 2^{\sin(x)} \cos(x) dx$
- (e) $\int (3-x) 7^{(3-x)^2} dx$

7. Calcule o integral, utilizando o método de integração por partes.

- (a) $\int x e^{-2x} dx$
- (b) $\int \frac{2x}{e^{2x}} dx$
- (c) $\int x^3 e^x dx$
- (d) $\int \frac{e^t}{t^2} dt$
- (e) $\int x^2 e^{x^3} dx$
- (f) $\int x^4 \ln(x) dx$
- (g) $\int t \ln(t+1) dt$
- (h) $\int \frac{\ln(x)}{x^2} dx$

(i) $\int x \cos(x) dx$

(j) $\int x \sin(x) dx$

(k) $\int x^3 \cos(x) dx$

(l) $\int \arctg(x) dx$

(m) $\int e^{2x} \sin(x) dx$

(n) $\int e^{2x} \cos(2x) dx$

8. Calcule os seguintes integrais por substituição.

(a) $\int \frac{1}{1 + \sqrt{2x}} dx$

(b) $\int \frac{1}{1 + \sqrt{3x}} dx$

(c) $\int \frac{\sqrt{x}}{\sqrt{x} - 3} dx$

(d) $\int \frac{\sqrt[3]{x}}{\sqrt[3]{x} - 1} dx$

9. Integre $\int 2x\sqrt{2x-3} dx$.

(a) Por partes.

(b) Por substituição, fazendo $u = 2x - 3$.

10. Integre $\int x\sqrt{4+x} dx$.

(a) Por partes.

(b) Por substituição, fazendo $u = 4 + x$.

11. Calcule o integral das seguintes funções racionais.

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

(b) $\int \frac{1}{4x^2 - 9} dx$

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

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

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

(f) $\int \frac{5x^2 - 12x - 12}{x^3 - 4x} dx$

(g) $\int \frac{x^2 + 12x + 12}{x^3 - 4x} dx$

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

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

(j) $\int \frac{2x^3 - 4x^2 - 15x + 5}{x^2 - 2x - 8} dx$

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

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

(m) $\int \frac{2x-3}{(x-1)^2} dx$

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

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

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

(q) $\int \frac{x^2 - x + 9}{(x^2 + 9)^2} dx$

(r) $\int \frac{x}{16x^4 - 1} dx$

(s) $\int \frac{x^2 + 5}{x^3 - x^2 + x + 3} dx$

(t) $\int \frac{x^2 + x + 3}{x^4 + 6x^2 + 9} dx$

12. Calcule o integral.

(a) $\int \cos^3(x) \sin(x) dx$

(b) $\int \cos^3(x) \sin^4(x) dx$

(c) $\int \sin^5(2x) \cos(2x) dx$

(d) $\int \sin^3(x) dx$

(e) $\int \sin^5(x) \cos^2(x) dx$

(f) $\int \cos^3(\theta) \sqrt{\sin(\theta)} d\theta$

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

(h) $\int \sin^2(2x) dx$

(i) $\int x \sin^2(x) dx$

(j) $\int x^2 \sin^2(x) dx$

13. Calcule o integral.

(a) $\int \operatorname{sen}(3x) \cos(2x) dx$

(b) $\int \cos(4\theta) \cos(-3\theta) d\theta$

(c) $\int \operatorname{sen}(\theta) \operatorname{sen}(3\theta) d\theta$

(d) $\int \operatorname{sen}(-4x) \cos(3x) dx$

Soluções

1. (a) $\frac{(x+3)^2}{2} + C, C \in \mathbb{R}$

(b) $-\frac{(x+5)^2}{2} + C, C \in \mathbb{R}$

(c) $x^2(x+1) + C, C \in \mathbb{R}$

(d) $x^4 + 2x^3 - x + C, C \in \mathbb{R}$

(e) $\frac{x(x^3+8)}{4} + C, C \in \mathbb{R}$

(f) $\frac{x(x^3-8x+8)}{4} + C, C \in \mathbb{R}$

(g) $x + x^2 + \frac{3x^{\frac{5}{3}}}{5} + C, C \in \mathbb{R}$

(h) $\frac{x^{\frac{1}{2}}(2x+3)}{3} + C, C \in \mathbb{R}$

(i) $\frac{3x(x^2)^{\frac{1}{3}}}{5} + C, C \in \mathbb{R}$

(j) $x + \frac{4x^{\frac{7}{4}}}{7} + C, C \in \mathbb{R}$

(k) $-\frac{1}{2x^2} + C, C \in \mathbb{R}$

(l) $\frac{2x^{\frac{5}{2}}}{5} + \frac{2x^{\frac{3}{2}}}{3} + 2\sqrt{x} + C, C \in \mathbb{R}$

(m) $-\frac{x^2+x-1}{x^3} + C, C \in \mathbb{R}$

(n) $\frac{x(2x^2+x-4)}{2} + C, C \in \mathbb{R}$

(o) $\frac{4}{5}t^5 - \frac{4}{3}t^3 + t + C, C \in \mathbb{R}$

(p) $\frac{2y^{\frac{7}{2}}}{7} + C, C \in \mathbb{R}$

(q) $\frac{t^3(9t+4)}{12} + C, C \in \mathbb{R}$

2. (a) $3\operatorname{sen}(x) - 2\cos(x) + C, C \in \mathbb{R}$

(b) $\cos(t) + \frac{t^3}{3} + C, C \in \mathbb{R}$

(c) $t + \operatorname{cosec}(t) + C, C \in \mathbb{R}$

(d) $\frac{\theta^3}{3} + \operatorname{tg}(\theta) + C, C \in \mathbb{R}$

(e) $\cos(\theta) + \operatorname{tg}(\theta) + C$

(f) $\sec(y) - \operatorname{tg}(y) + C, C \in \mathbb{R}$

(g) $\operatorname{tg}(y) + C, C \in \mathbb{R}$

(h) $-\operatorname{cosec}(x) + C, C \in \mathbb{R}$

3. (a) $e^{5x} + C, C \in \mathbb{R}$

(b) $\frac{1}{e^{x^4}} + C, C \in \mathbb{R}$

(c) $2e^{\sqrt{x}} + C, C \in \mathbb{R}$

(d) $-\frac{1}{2}e^{x^{-2}} + C, C \in \mathbb{R}$

(e) $\frac{1}{2}\ln|e^{2x}| + C, C \in \mathbb{R}$

(f) $-\ln|e^{-x} + 1| + C, C \in \mathbb{R}$

(g) $-\frac{2}{3}(1 - e^x)^{\frac{3}{2}} + C, C \in \mathbb{R}$

(h) $\ln|e^{2x} - 1| - x + C, C \in \mathbb{R}$

(i) $-\frac{1}{e^x + e^{-x}} + C, C \in \mathbb{R}$

(j) $\frac{1}{e^x} - \frac{5}{2e^{2x}} + C, C \in \mathbb{R}$

(k) $2x + e^x + e^{-x} + C, C \in \mathbb{R}$

(l) $\ln|\cos e^{-x}| + C, C \in \mathbb{R}$

(m) $x^2 - x + C, C \in \mathbb{R}$

4. (a) $5\ln|x| + C, C \in \mathbb{R}$

(b) $10\ln|x| + C, C \in \mathbb{R}$

(c) $\ln|x+1| + C, C \in \mathbb{R}$

(d) $\ln|x-5| + C, C \in \mathbb{R}$

(e) $-\frac{1}{2}\ln|x - \frac{3}{2}| + C, C \in \mathbb{R}$

(f) $\frac{1}{3}\ln|3x+2| + C, C \in \mathbb{R}$

(g) $\frac{1}{2}\ln|x^2+1| + C, C \in \mathbb{R}$

(h) $-\frac{1}{3}\ln|3-x^3| + C, C \in \mathbb{R}$

(i) $\frac{x^2}{2} - 4\ln|x| + C, C \in \mathbb{R}$

(j) $-(9-x^2)^{\frac{1}{2}} + C, C \in \mathbb{R}$

(k) $\frac{1}{3}\ln|x(x^2+3x+9)| + C, C \in \mathbb{R}$

(l) $\frac{1}{3}\ln|x-1| + \frac{1}{3}\ln|x+2| + C, C \in \mathbb{R}$

(m) $5\ln|x-3| + \frac{x^2}{2} + C, C \in \mathbb{R}$

(n) $11x + 19\ln|x-2| + x^2 + C, C \in \mathbb{R}$

(o) $5\ln|x-3| + \frac{x^3}{3} + C, C \in \mathbb{R}$

(p) $19x - 115\ln|x-5| - \frac{5x^2}{2} + \frac{x^3}{3} + C, C \in \mathbb{R}$

(q) $\frac{1}{2}\ln|x^2+2| - 2x + \frac{x^3}{3} + C, C \in \mathbb{R}$

(r) $\frac{1}{2}\ln|x^2+3| - 3x + \frac{x^2}{2} + C, C \in \mathbb{R}$

(s) $\frac{1}{3}\ln^3|x| + C, C \in \mathbb{R}$

(t) $\frac{1}{3}\ln|\ln(x)| + C, C \in \mathbb{R}$

(u) $2(x+1)^{\frac{1}{2}} + C, C \in \mathbb{R}$

(v) $\frac{-2}{x-1} + C, C \in \mathbb{R}$

5. (a) $5 \arcsen\left(\frac{x}{3}\right) + C, C \in \mathbb{R}$
 (b) $3 \arcsen(x) + C, C \in \mathbb{R}$
 (c) $\frac{7}{4} \operatorname{arctg}\left(\frac{x}{4}\right) + C, C \in \mathbb{R}$
 (d) $\frac{1}{3} \operatorname{arctg}(3x) + C, C \in \mathbb{R}$
 (e) $\frac{1}{2} \operatorname{arctg}\left(\frac{x}{2} - \frac{1}{2}\right) + C, C \in \mathbb{R}$
 (f) $\frac{x^2}{2} - \frac{1}{2} \ln|x^2 + 1| + C, C \in \mathbb{R}$
 (g) $\frac{x(x^2-3)}{3} + C, C \in \mathbb{R}$
 (h) $\arcsen(x+1) + C, C \in \mathbb{R}$
 (i) $\frac{1}{8} \operatorname{arctg}\left(\frac{t^2}{4}\right) + C, C \in \mathbb{R}$
 (j) $\frac{1}{2} \arcsen(t^2) + C, C \in \mathbb{R}$
 (k) $\frac{1}{4} \operatorname{arctg}\left(\frac{e^{2x}}{2}\right) + C, C \in \mathbb{R}$
 (l) $\frac{\sqrt{3}}{3} \operatorname{arctg}\left(\frac{\sqrt{3}x-2\sqrt{3}}{3}\right) + C, C \in \mathbb{R}$
 (m) $\operatorname{arctg}(\sqrt{x}) + C, C \in \mathbb{R}$
 (n) $\frac{1}{2} \ln|x^2 + 1| - 3 \operatorname{arctg}(x) + C, C \in \mathbb{R}$
 (o) $3 \arcsen(x) - 4\sqrt{1-x^2} + C, C \in \mathbb{R}$
6. (a) $\frac{3^x}{\ln(3)} + C, C \in \mathbb{R}$
 (b) $-\frac{1}{5^x \ln(5)} + C, C \in \mathbb{R}$
 (c) $-\frac{1}{5x^2 2 \ln(5)} + C, C \in \mathbb{R}$
 (d) $\frac{2^{\operatorname{sen}(x)}}{\ln(2)} + C, C \in \mathbb{R}$
 (e) $-\frac{7^{(x-3)^2}}{2 \ln(7)} + C, C \in \mathbb{R}$
7. (a) $-\frac{2x+1}{4e^{2x}} + C, C \in \mathbb{R}$
 (b) $-\frac{2x+1}{2e^{2x}} + C, C \in \mathbb{R}$
 (c) $e^x(x^3 - 3x^2 + 6x - 6) + C, C \in \mathbb{R}$
 (d) $-e^{\frac{1}{t}} + C, C \in \mathbb{R}$
 (e) $\frac{e^{x^3}}{3} + C, C \in \mathbb{R}$
 (f) $\frac{x^5(\ln(x) - \frac{1}{5})}{5} + C, C \in \mathbb{R}$
 (g) $\frac{t}{2} - \frac{\ln(t+1)}{2} + t^2\left(\frac{\ln(t+1)}{2} - \frac{1}{4}\right) + C, C \in \mathbb{R}$
 (h) $-\frac{\ln(x)+1}{x} + C, C \in \mathbb{R}$
 (i) $\cos(x) + x \operatorname{sen}(x) + C, C \in \mathbb{R}$
 (j) $\operatorname{sen}(x) - x \cos(x) + C, C \in \mathbb{R}$
 (k) $3x^2 \cos(x) - 6 \cos(x) + x^3 \operatorname{sen}(x) - 6x \operatorname{sen}(x) + C, C \in \mathbb{R}$
 (l) $x \operatorname{arctg}(x) - \frac{\ln(x^2+1)}{2} + C, C \in \mathbb{R}$
 (m) $-\frac{e^{2x}(\cos(x)-2 \operatorname{sen}(x))}{5} + C, C \in \mathbb{R}$
- (n) $\frac{e^{2x}(\cos(2x)+\operatorname{sen}(2x))}{4} + C, C \in \mathbb{R}$
8. (a) $\sqrt{2x} - \ln(\sqrt{2x} + 1) + C, C \in \mathbb{R}$
 (b) $\frac{2}{3} \sqrt{3x} - \frac{2}{3} \ln(\sqrt{3x} + 1) + C, C \in \mathbb{R}$
 (c) $x + 18 \ln(\sqrt{x} - 3) + 6\sqrt{x} + C, C \in \mathbb{R}$
 (d) $x + 3 \ln(\sqrt[3]{x} - 1) + 3\sqrt[3]{x} + \frac{3}{2} \sqrt[3]{x^2} + C, C \in \mathbb{R}$
9. (a) $\frac{2}{3}(2x-3)^{\frac{3}{2}}x - \frac{1}{5}(2x-3)^{\frac{5}{2}} + C, C \in \mathbb{R}$
 (b) $\frac{1}{5}(2x-3)^{\frac{5}{2}} + (2x-3)^{\frac{3}{2}} + C, C \in \mathbb{R}$
10. (a) $\frac{2}{3}(4+x)^{\frac{3}{2}}x - \frac{4}{15}(4+x)^{\frac{5}{2}} + C, C \in \mathbb{R}$
 (b) $\frac{2}{5}(4+x)^{\frac{5}{2}} - \frac{8}{3}(4+x)^{\frac{3}{2}} + C, C \in \mathbb{R}$
11. (a) $\frac{1}{2} \ln|x-1| - \frac{1}{2} \ln|x+1| + C, C \in \mathbb{R}$
 (b) $\frac{1}{12} \ln|2x-3| - \frac{1}{12} \ln|2x+3| + C, C \in \mathbb{R}$
 (c) $\ln|x-1| - \ln|x+2| + C, C \in \mathbb{R}$
 (d) $\ln|x+3| + C, C \in \mathbb{R}$
 (e) $\frac{3}{2} \ln|2x-1| - 2 \ln|x+1| + C, C \in \mathbb{R}$
 (f) $\ln|x+2| - \ln|x-2| + 3 \ln|x| + C, C \in \mathbb{R}$
 (g) $2 \ln|x-2| - 4 \ln|x+2| + 3 \ln|x| + C, C \in \mathbb{R}$
 (h) $\frac{1}{2} \ln|x-1| - \frac{1}{2} \ln|x+1| + C, C \in \mathbb{R}$
 (i) $\ln|x^2+x-2| - x - \frac{1}{2}x^2 + C, C \in \mathbb{R}$
 (j) $\frac{3}{2} \ln|x-4| - \frac{1}{2} \ln|x+2| + C, C \in \mathbb{R}$
 (k) $\frac{3}{2} \ln|x-4| - \frac{1}{2} \ln|x| + C, C \in \mathbb{R}$
 (l) $\ln|x+1| + 3 \ln|x| + \frac{1}{x} + C, C \in \mathbb{R}$
 (m) $2 \ln|x-1| + \frac{1}{x-1} + C, C \in \mathbb{R}$
 (n) $2 \ln|x-2| - \ln|x| \frac{3}{x-2} + C, C \in \mathbb{R}$
 (o) $\ln|x-1| + 3 \ln|x+1| + \frac{2}{x+1} + C, C \in \mathbb{R}$
 (p) $\ln|x^2+1| - \ln|x| + C, C \in \mathbb{R}$
 (q) $\frac{1}{3} \operatorname{arctg}\left(\frac{x}{3}\right) + \frac{1}{2(x^2+9)} + C, C \in \mathbb{R}$
 (r) $\frac{1}{16} \ln\left|\frac{4x^2-1}{4x^2+1}\right| + C, C \in \mathbb{R}$
 (s) $\sqrt{2} \operatorname{arctg}\left(\frac{\sqrt{2}}{2}(x-1)\right) + \ln|x+1| + C, C \in \mathbb{R}$
 (t) $\frac{\sqrt{3}}{3} \operatorname{arctg}\left(\frac{\sqrt{3}}{3x}\right) - \frac{1}{2(x^2+3)} + C, C \in \mathbb{R}$
12. (a) $-\frac{1}{4} \cos^4(x) + C, C \in \mathbb{R}$
 (b) $\frac{1}{5} \operatorname{sen}^5(x) - \frac{1}{7} \operatorname{sen}^7(x) + C, C \in \mathbb{R}$
 (c) $\frac{1}{12} \operatorname{sen}^6(2x) + C, C \in \mathbb{R}$
 (d) $\frac{1}{12} \cos(3x) - \frac{3}{4} \cos(x) + C, C \in \mathbb{R}$
 (e) $-\cos(x) \left(\frac{1}{7} \operatorname{sen}^4(x) + \frac{4}{35} \operatorname{sen}^2(x) + \frac{8}{105}\right) + C, C \in \mathbb{R}$
 (f) $\frac{2}{3} \operatorname{sen}^{\frac{3}{2}}(\theta) - \frac{2}{7} \operatorname{sen}^{\frac{7}{2}}(\theta) + C, C \in \mathbb{R}$
 (g) $\frac{x}{2} + \frac{1}{12} \operatorname{sen}(6x) + C, C \in \mathbb{R}$

(h) $\frac{x}{2} + \frac{1}{8} \operatorname{sen}(4x) + C, C \in \Re$

(i) $-\frac{1}{2}x \operatorname{sen}(x) \cos(x) + \frac{1}{4} \operatorname{sen}^2(x) + \frac{1}{4}x^2 + C, C \in \Re$

(j) $\left(\frac{1}{4} - \frac{1}{2}x^2\right) \operatorname{sen}(x) \cos(x) + \frac{1}{2}x \operatorname{sen}^2(x) + \frac{1}{6}x^3 - \frac{1}{4}x + C, C \in \Re$

13. (a) $-\frac{1}{10} \cos(5x) - \frac{1}{2} \cos(x) + C, C \in \Re$

(b) $\frac{1}{14} \operatorname{sen}(7\theta) + \frac{1}{2} \operatorname{sen}(\theta) + C, C \in \Re$

(c) $\frac{1}{4} \operatorname{sen}(2\theta) - \frac{1}{8} \operatorname{sen}(4\theta) + C, C \in \Re$

(d) $\frac{1}{14} \cos(7x) + \frac{1}{2} \cos(x) + C, C \in \Re$