

Capítulo 4

1.
 - a) $\frac{3}{4} \sqrt[3]{(x^2+3)^4} + C$
 - b) $x^5 + \frac{2}{3} x^3 + 3x + C$
 - c) $\frac{a}{6} x^6 + C$
 - d) $\arcsen(e^x) + C$
 - e) $\frac{\sen(6x)}{6} + C$
 - f) $\frac{2}{3} \log |x| + C$
 - g) $-\frac{\cos(2x-3)}{2} + C$
 - h) $\frac{3}{2} \log(5+x^2) + C$
 - i) $\frac{1}{3} \sqrt{(x^2+9)^3} + C$
 - j) $\sen(x) - \frac{5}{2} e^{2x} + C$
 - k) $\frac{1}{4} \log(2x^2+5) + \frac{1}{2} \sen(2x) + C$
 - l) $\frac{1}{\sqrt{5}} \arcsen(\sqrt{5}x) + C$
 - m) $\frac{3}{2x} + 5 \log |x| + 4\sqrt{x} + C$
 - n) $-\frac{\cos^3(x)}{3} + C$
 - o) $\frac{1}{2} \log |1+2\cos(x)| - \cotg(x) + C$
 - p) $-\frac{\cos^3(x)}{3} + \sen^2(x) + C$
 - q) $\frac{k}{2b} \log |a+bx^2| + C$
 - r) $a(-\cos(x) + \frac{x^2}{2}) + C$
 - s) $\frac{1}{2} \log^2 |x| + C$
 - t) $\log |\log(x)| + C$
2.
 - a) $x \arctg(x) - \frac{1}{2} \log(1+x^2) + C$
 - b) $x \sen(x) + \cos(x) + C$
 - c) $x \tg(x) + \log |\cos(x)| + C$
 - d) $(x^2-x+2)e^x + C$
 - e) $(x^2-1) \sen(x) + 2x \cos(x) + C$
 - f) $-\frac{1}{x}(\log |x| + 1) + C$
3.
 - a) $\frac{2}{35} \sqrt{x-1} (5x^3+6x^2+8x+16) + C$
 - b) $2 \left(\arcsen\left(\frac{x}{2}\right) - \frac{x}{4} \sqrt{4-x^2} \right) + C$
 - c) $-2 \left(\sqrt{\frac{x+2}{x+4}} + \frac{1}{2} \log \left| \frac{\sqrt{\frac{x+2}{x+4}} - 1}{\sqrt{\frac{x+2}{x+4}} + 1} \right| \right) + C$
 - d) $\arctg(e^x) + C$
 - e) $\frac{\sqrt{2}}{2} \log \left| \frac{\tg\left(\frac{x}{2}\right) - (1-\sqrt{2})}{\tg\left(\frac{x}{2}\right) - (1+\sqrt{2})} \right| + C$
4.
 - a) $\frac{x^5}{10} - \frac{x^4}{16} + \frac{x^3}{24} - \frac{x^2}{32} + \frac{x}{32} - \frac{1}{64} \log |x + \frac{1}{2}| + C$
 - b) $\frac{1}{3} \left(x - \frac{3}{2} \arctg\left(\frac{x}{2}\right) \right) + C$
 - c) $\frac{1}{3} \left(-\frac{4}{x-2} + \log |x-2| \right) + C$
 - d) $\frac{x^2}{4} + x + \log \left(\frac{|x-2|}{\sqrt{x^2+4}} \right) - \arctg\left(\frac{x}{2}\right) + C$
 - e) $\frac{2}{5} \log |(x+2)^2(x-3)^3| + C$
 - f) $\frac{1}{4} \log \left| \frac{(x-1)^3(x^2+3)}{x+1} \right| + C$
 - g) $\frac{1}{6} \log \left| \frac{x-3}{x+3} \right| + C$
 - h) $-\frac{3}{5} \log |(x-3)^3(x+2)^2| + C$
 - i) $-\frac{1}{t} + \log |t| - \frac{1}{2} \log(t^2+1) - \arctg(t) + C$
 - j) $\frac{1}{x^2+1} + \log(x^2+1) + C$
5. $(x^2-2x+2)e^x - 1$
6. $\arctg(3x+1) + \pi$
7. $\frac{5}{2} \cos^{8/5}(x) \left(\frac{1}{9} \cos^2(x) - \frac{1}{4} \right) + (x^2-2x+2)e^x + \frac{385}{72}$
8. $\frac{4}{x+1} + 1$

9. b) $\frac{4}{3} \left(\frac{1}{\log(x)+1} + \frac{1}{3} \log \left| \frac{\log(x)-2}{\log(x)+1} \right| \right) + C$
11. a) $-\frac{1}{2} x \cos(2x-1) + \frac{1}{4} \sin(2x-1) + C$
- b) $\left(\frac{x^2}{2} + \frac{1}{2} \right) \operatorname{arctg}(x) - \frac{x}{2} + C$
- c) $\frac{2}{3} (x-2) \sqrt{x-2} + C$
- d) $\sqrt{t^2+2t+3} + C$
- e) $x e^x + C$
- f) $3\sqrt{x^2+5} - \frac{1}{9} \log |\cos(9x)| + C$
- g) $\frac{1}{10}(x^2 + 4x) - \frac{3}{5} \log(x^2 - 2x + 10) + \frac{5}{3} \operatorname{arctg} \left(\frac{x-1}{3} \right) + C$
- h) $2 \log \left| \frac{x}{3} \right| + C$
- i) $e^{-x} - \frac{2}{e^x - 1} + 2 \log \left| \frac{e^x}{e^x - 1} \right| + C$
- j) $\operatorname{arctg} \left(\frac{\sqrt{x^2+4x-4}-x}{2} \right) + C$
- k) $x \operatorname{arctg}(5x) - \frac{1}{10} \log(1+25x^2) + C$
- l) $-2 \operatorname{arctg} \left(\frac{\sqrt{-x^2+x+2}}{x-2} \right) + C$
- m) $2\sqrt{x+1} - 4\sqrt[4]{x+1} + 4 \log(\sqrt[4]{x+1} + 1) + C$
- n) $\frac{1}{4} \left(\frac{3}{2} x + \frac{\sin(2ax)}{a} + \frac{\sin(4ax)}{8a} \right) + C$
- o) $\frac{1}{40} (1+x^3)^{5/3} (5x^3-3) + C$
- p) $\frac{2}{3} \operatorname{arctg} \left(\frac{1}{3} \operatorname{tg} \left(\frac{x}{2} \right) \right) + C$
- q) $-\frac{2}{3\sqrt{x}} - e^x + \log|x| + C$
- r) $x(1+\log^2(x)) + C$
- s) $\frac{1}{2} \log(2+\operatorname{tg}^2(x)) + C$
- t) $-\frac{2}{x-1} + \frac{1}{4} \log \left| \frac{x+1}{x-1} \right| + C$
- u) $\frac{x^2}{6} + \frac{4}{27} \log \left| \frac{x-1}{x+2} \right| - \frac{8}{9} \cdot \frac{1}{x+2} + C$
- v) $\frac{1}{8} e^{2x} (4x^3 + 6x^2 + 6x + 1) + C$
- w) $\frac{x^2}{4} + x + 4 \log|x-4| + \frac{1}{2} \log|x+2| + C$
- x) $\frac{2}{27} (6x+1) \sqrt{3x+2} + C$
- y) $-\frac{1}{2} \cdot \frac{1}{t-1} + \frac{1}{2} \log \left(\frac{|t-1|}{\sqrt{t^2+1}} \right) - \operatorname{arctg}(t) + C$
- z) $-\log \left| \operatorname{tg}^2 \left(\frac{x}{2} \right) - 1 \right| + C$