LISTA 3 DE CÁLCULO I

Calcule as integrais indefinidas:

1. $\int 3x^2 - 4x - 5\,dx = x^3 - 2x^2 - 5x + c$
2. $\int 2x^3 - 4x^2 - 5x + 6\,dx = \frac{x^4}{2} - \frac{4x^3}{3} - \frac{5x^2}{2} + 6x + c$
3. $\int \frac{x^3 - 1}{x - 1} dx = \frac{x^3}{3} + \frac{x^2}{2} + x + c$
4. $\int x^2 + 3x + \frac{1}{x^2} dx = \frac{x^3}{3} + \frac{3x^2}{2} - \frac{1}{x} + c$
5. $\int \frac{25x^3 - 1}{\sqrt{x}} dx = \frac{50}{7} x^{\frac{7}{2}} - 2x^{\frac{1}{2}} + c$
6. $\int \frac{(\sqrt{x} - 1)^2}{\sqrt{x}} dx = \frac{2}{3} x^{\frac{3}{2}} - 2x + 2x^{\frac{1}{2}} + c$
7. $\int \frac{2}{x^3} + \frac{3}{x^2} + 5\,dx = -\frac{1}{x^2} - \frac{3}{x} + 5x + c$
8. $\int x\sqrt{4x^2 + 15} dx = \frac{(4x^2 + 15)^{\frac{3}{2}}}{12} + c$
9. $\int \frac{x}{\sqrt{x + 3}} dx = \frac{2}{3}(x + 3)^{\frac{3}{2}} - 6(x + 3)^{\frac{1}{2}} + c$
10. $\int (e^x + 1)^3 e^x dx = \frac{(e^x + 1)^4}{4} + c$
11. $\int tg\, x\, sec^2 x\, dx = \frac{1}{2} tg^2 x + c$
12. $\int tg\, x\, dx = ln\, sec\, x + c$
13. $\int \frac{e^{\frac{1}{x}}}{x^2} dx = -e^{\frac{1}{x}} + c$
14. $\int tg\, x\, sec\, x\, dx = sec\, x + c$
15. $\int \frac{dx}{9 + x^2} dx = \frac{1}{3} arctg\, \frac{x}{3} + c$
16. $\int sen^3 x\, dx = -cos\, x + \frac{1}{3} cos^3 x + c$
17. $\int x^2 ln\, x\, dx = \frac{x^3}{3} ln\, x - \frac{1}{9} x^3 + c$

18. $\int sen^2x\,dx = \frac{1}{2}x - \frac{1}{4}sen2x + c$

19. $\int x^3e^{2x}dx = \frac{1}{2}x^3e^{2x} - \frac{3}{4}x^2e^{2x} + \frac{3}{4}xe^{2x} + c$

20. $\int x^2 sen\,x\,dx = -x^2 cos\,x + 2x\,sen\,x + 2cos\,x + c$

21. $\int arcsen\,x\,dx = x\,arcsen\,x + \sqrt{1-x^2} + c$

22. $\int sec^3x\,dx = \frac{1}{2}[\sec\,x\,tg\,x + ln(sec\,x + tg\,x)] + c$

23. $\int \frac{dx}{\sqrt{9x^2+16}} = \frac{1}{3}\ln\mid \frac{\sqrt{9x^2+16}}{4} + \frac{3x}{4} \mid + c$

24. $\int \frac{dx}{9x^2-1} = \frac{1}{3}ln\mid \frac{3x}{\sqrt{9x^2-1}} - \frac{1}{\sqrt{9x^2-1}} \mid + c$

25. $\int \frac{dx}{(x^2+3)^{\frac{3}{2}}} = \frac{x}{3\sqrt{3+x^2}} + c$

26. $\int \frac{dx}{\sqrt{25-9x^2}} = \frac{1}{3}arcsen\frac{3x}{5} + c$

27. $\int \frac{x}{\sqrt{4x^2+8x+5}}dx = \frac{1}{4}\sqrt{4x^2+8x+5} - \frac{1}{2}ln\mid \sqrt{4x^2+8x+5} + 2(x+1) \mid + c$