

Resolver as seguintes integrais:

$$1. \int x^2 (2-x)^2 dx = \frac{4}{3}x^3 - x^4 + \frac{1}{5}x^5 + C$$

$$2. \int \left[\frac{2}{x} - \frac{1}{(3x-7)^2} + \operatorname{tg}(2x) \right] dx = 2 \ln(x) + \frac{1}{9x-21} + \frac{1}{2} \ln[\sec(2x)] + C$$

$$3. \int \left[x + 3e^{2x} - \operatorname{cotg}\left(\frac{x}{3}\right) \right] dx = \frac{x^2}{2} + \frac{3}{2}e^{2x} - 3 \ln\left[\operatorname{sen}\left(\frac{x}{3}\right)\right] + c$$

$$4. \int \left[\frac{x}{x^2+1} + \frac{1}{\sqrt{9-x^2}} \right] dx = \frac{1}{2} \ln(x^2+1) + \operatorname{arc sen}\left(\frac{x}{3}\right) + c$$

$$5. \int \left[\frac{4}{x\sqrt{x}} - \frac{1}{\cos\sec(x)} + \operatorname{tg}(2x) \right] dx = -\frac{8}{\sqrt{x}} + \cos(x) + \frac{1}{2} \ln[\sec(2x)] + c$$

$$6. \int \sqrt{x^2+2} dx = \frac{1}{2}x\sqrt{x^2+2} + \ln(x+\sqrt{x^2+2}) + c$$

$$7. \int \frac{x dx}{16+x^2} = \frac{1}{2} \ln(x^2+16) + c$$

$$8. \int [\operatorname{sen}(4x) + \cos(2\pi x)] dx = -\frac{\cos(4x)}{4} + \frac{\operatorname{sen}(2\pi x)}{2\pi} + c$$

$$9. \int 2^{x^2+1} x dx = \frac{2^{x^2+1}}{2 \ln(2)} + c$$

$$10. \int 8x\sqrt{1-2x^2} dx = -\frac{4}{3}\sqrt{(1-2x^2)^3} + c$$

$$11. \int \sec^2(5x+3) dx = \frac{1}{5} \operatorname{tg}(5x+3) + c$$

$$12. \int x^2 [\cos(2x^3) + 4x] dx = \frac{1}{6} \operatorname{sen}(2x^3) + x^4 + c$$

$$13. \int (2x^3 - 5x^2 - 3x + 4) dx = \frac{x^4}{2} - \frac{5}{3}x^3 - \frac{3}{2}x^2 + 4x + c$$

$$14. \int (x + \sqrt{x}) dx = \frac{1}{2}x^2 + \frac{2}{3}\sqrt{x^3} + c$$

$$15. \int \frac{x dx}{\sqrt{2x^2+3}} = \frac{\sqrt{2x^2+3}}{2} + c$$

$$16. \int \left[e^{3x} + \sqrt[3]{x^2} + \operatorname{sen}(2x+1) + \frac{1}{3x} \right] dx = \frac{1}{3}e^{3x} + \frac{3}{5}\sqrt[3]{x^5} - \frac{1}{2}\cos(2x) + \frac{1}{3}\ln(x) + c$$

$$17. \int \left(x^2 e^{x^3} + \frac{\sqrt{1-x}}{3} + \frac{5\sqrt{x}}{\sqrt{x}} \right) dx = \frac{1}{3}e^{x^3} - \frac{2}{9}\sqrt{(1-x)^3} + 2 \frac{5\sqrt{x}}{\ln} + c$$

$$18. \int \left(3x\sqrt{x} - \frac{4}{x} + 5\cos(x) - 7e^{-x} \right) dx = \frac{6}{5}\sqrt{x^5} - 4\ln(x) + 5\operatorname{sen}(x) + 7e^{-x} + c$$

$$19. \int \frac{dx}{\sqrt{1-5x}} = -\frac{2}{5} \sqrt{1-5x} + c$$

$$20. \int \frac{dx}{\sqrt{2x^2+3}} = \frac{\sqrt{2}}{2} \ln(\sqrt{2}x + \sqrt{2x^2+3}) + c$$

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

$$22. \int \sqrt{5-3x^2} dx = \frac{x}{2} \sqrt{5-3x^2} + \frac{5\sqrt{3}}{2} \arcsen\left(\frac{\sqrt{15}x}{5}\right) + c$$

$$23. \int \frac{t dt}{a^4+t^4} = \frac{1}{a^2} \operatorname{arctg}\left(\frac{t^2}{a^2}\right) + c$$

$$24. \int \frac{dx}{\sqrt{9-16x^2}} = \frac{1}{4} \arcsen\left(\frac{4x}{3}\right) + c$$

$$25. \int \frac{(6x+5)}{\sqrt{9x^2+1}} dx = \frac{2}{3} \sqrt{9x^2+1} + \frac{5}{3} \ln(3x + \sqrt{9x^2+1}) + c$$

$$26. \int \sqrt{4-x^2} dx = \frac{x}{2} \sqrt{4-x^2} + 2 \arcsen\left(\frac{x}{2}\right) + c$$

$$27. \int \sqrt{36+x^2} dx = \frac{x}{2} \sqrt{36+x^2} + 18 \ln(x + \sqrt{36+x^2}) + c$$

$$28. \int \sqrt{x^2-16} dx = \frac{x}{2} \sqrt{x^2-16} - 8 \ln(x + \sqrt{x^2-16}) + c$$

$$29. \int \frac{e^x}{\sqrt{e^{2x}+1}} dx = \ln(e^x + \sqrt{e^{2x}+1}) + c$$

$$30. \int (\sqrt{25+x^2} + 2x) dx = \frac{x}{2} \sqrt{25+x^2} + \frac{25}{2} \ln(x + \sqrt{25+x^2}) + x^2 + c$$

$$31. \int \frac{(x-3)}{1-x^2} dx = -\frac{1}{2} \ln(1-x^2) - \frac{3}{2} \ln\left(\frac{1+x}{1-x}\right) + c$$

$$32. \int \frac{dx}{4-x^2} = \frac{1}{4} \ln\left[\frac{2+x}{2-x}\right] + c$$

$$33. \int \frac{5x dx}{\sqrt{1-x^4}} = \frac{5}{2} \arcsen(x^2) + c$$