Integration Practice (Solutions)

October 23, 2024

Evaluate the following indefinite integrals:

1. $\int (3x^2 - 8x + 5)\,dx = x^3 - 4x^2 + 5x + C$
2. $\int (x^4 - 2x^3 + 7)\,dx = \frac{1}{5}x^5 - \frac{1}{2}x^4 + 7x + C$
3. $\int (\frac{1}{2}x^3 - \frac{3}{4}x^2 + x - 2)\,dx = \frac{1}{8}x^4 - \frac{1}{4}x^3 + \frac{1}{2}x^2 - 2x + C$
4. $\int (12x^5 - 5x^4 + 8x^3 - 2)\,dx = 2x^6 - x^5 + 2x^4 - 2x + C$
5. $\int (9x^2 + 4x - 11)\,dx = 3x^3 + 2x^2 - 11x + C$
6. $\int (x^6 - 3x^4 + x^2 - 5)\,dx = \frac{1}{7}x^7 - \frac{3}{5}x^5 + \frac{1}{3}x^3 - 5x + C$
7. $\int (5x^4 + 2x^2 - 9)\,dx = x^5 + \frac{2}{3}x^3 - 9x + C$
8. $\int (x^3 - 7x + 4)\,dx = \frac{1}{4}x^4 - \frac{7}{2}x^2 + 4x + C$
9. $\int (10x^5 - 3x^2 + 1)\,dx = \frac{5}{3}x^6 - x^3 + x + C$
10. $\int 3x^2(x^3 + 2)^4\,dx = \frac{1}{5}(x^3 + 2)^5 + C$
11. $\int 2x\sqrt{x^2 - 5}\,dx = \frac{2}{3}(x^2 - 5)^{3/2} + C$
12. $\int \cos(x)\sin^2(x)\,dx = \frac{1}{3}\sin^3(x) + C$
13. $\int (2x + 1)(x^2 + x)^3\,dx = \frac{1}{4}(x^2 + x)^4 + C$
14. $\int 4x^3\sqrt[3]{x^4 + 1}\,dx = \frac{3}{4}(x^4 + 1)^{4/3} + C$