

Integrals and Natural Logarithms #6 - Answers

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Name _____

Instructions

Solutions appear on the SOLUTIONS page.

1. $\int (3x^6 + 5x^4 - 6x^2 + 2\sqrt{x}) dx = \frac{3}{7}x^7 + x^5 - 2x^3 + \frac{4}{3}x^{\frac{3}{2}} + C$
2. $\int (4 \sec(x) \tan(x) - 8 \csc(x) \cot(x)) dx = 4 \sec(x) + 8 \csc(x) + C$
3. $\int_{x=-1}^{x=2} (4x^3 - 8x^2 + 2) dx = -3$
4. $\int (3 \sin(x) + 5)^5 \cos(x) dx = \frac{1}{18} (3 \sin(x) + 5)^6 + C$
5. $\int \cos(2x + 1) dx = \frac{1}{2} \sin(2x + 1) + C$
6. $\int \frac{2x+1}{3x^2+3x} dx = \frac{1}{3} \ln |3x^2 + 3x| + C$
7. $\frac{d}{dx} [\ln(\csc(x) + 4)] = -\frac{\csc(x) \cot(x)}{\csc(x)+4}$
8. $\frac{d}{dx} [\ln(5x^3 - 2x^2)] = \frac{15x^2 - 4x}{5x^3 - 2x^2} = \frac{15x - 4}{5x^2 - 2x}$
9. $\frac{d}{dx} \left[\ln \left(\sqrt{\frac{x^2-1}{\cos(x)}} \right) \right] = \frac{x}{x^2-1} + \frac{1}{2} \frac{\sin(x)}{\cos(x)} = \frac{x}{x^2-1} + \frac{1}{2} \tan(x)$
10. $\int_{x=0}^{x=1} (3x - 1)^4 dx = \frac{11}{5}$