

6.14 Selecting Techniques for Antidifferentiation

Calculus

Name: _____

CA #1

Find the indefinite integral.

1. $\int x(e^2 - \sqrt{x}) dx$

2. $\int \frac{6x^2 - 63x + 74}{x-9} dx$

3. $\int \frac{\sec^2 x}{\sqrt{\tan x}} dx$

4. $\int \left(\frac{4x^2 - 3x + 6}{x} \right) dx$

5. $\int \frac{(\ln x)^5}{x} dx$

6. $\int \frac{1}{x^2 - 4x + 5} dx$

7. $\int \frac{1}{\sqrt{1-x^2}} dx$

8. $\int \frac{e^x}{4 - e^x} dx$

Evaluate the definite integral.

9. $\int_0^4 (4x + 5) dx$

10. $\int_0^1 \frac{x}{(x^2+1)^3} dx$

11. $\int_{-\pi}^{-\frac{\pi}{2}} (1 - \cos x) dx$

12. $\int_0^1 e^{-2x} dx$

13. $\int_{-\frac{1}{3}}^{\frac{1}{3}} \frac{1}{1+9t^2} dt$

Answers to 6.14 CA #1

1. $\frac{e^2}{2}x^2 - \frac{2}{5}x^{\frac{5}{2}} + C$	2. $3x^2 - 9x - 7 \ln x - 9 + C$	3. $2\sqrt{\tan x} + C$			
4. $2x^2 - 3x + 6 \ln x + C$	5. $\frac{[\ln x]^6}{6} + C$	6. $\tan^{-1}(x - 2) + C$	7. $\sin^{-1}(x) + C$		
8. $-\ln 4 - e^x + C$	9. 52	10. $\frac{3}{16}$	11. $\frac{\pi}{2} + 1$	12. $\frac{1}{2} - \frac{1}{2e^2}$	13. $\frac{\pi}{6}$