

**East Los Angeles College**  
**Department of Mathematics**  
**Math 261**  
**Test 4**

Integrate the following

1.  $\int_0^2 (x + x^2) dx$

2.  $\int_{-3}^4 (1 + |x|) dx$

3.  $\int_1^5 \frac{1}{2x^2} dx$

4.  $\int_0^{\pi/4} (1 + \sec^2(x)) dx$

5.  $\int_1^9 \frac{\sqrt{x}+1}{x^2} dx$

6.  $\int_{-\pi/4}^{\pi/4} (1 + 2\sec(x)\tan(x)) dx$

7.  $\int_0^4 (x - 5)(x + 3) dx$

8.  $\int_1^8 \left( t - 3t^{3/2} + \frac{1}{t^2} \right) dt$

9.  $\int_0^{2\pi} |\sin(x)| dx$

10.  $\int_0^4 |2x - 3| dx$

11.  $\int_0^{\pi/4} \sin(2\pi x) dx$

12.  $\int_0^4 \frac{1}{\sqrt{x+5}} dx$

13.  $\int (2x + 7)^5 dx$

14.  $\int \sqrt[3]{1-x} dx$

15.  $\int \frac{\cos(\sqrt{x})}{\sqrt{x}} dx$

16.  $\int \frac{\sin\left(\frac{\pi}{x}\right)}{x^2} dx$

17.  $\int \frac{1}{(x-3)^2} dx$

18.  $\int \frac{x+2}{\sqrt{x^2+4x}} dx$

19.  $\int \csc^2(5x) dx$

20.  $\int (1 + \tan(\theta))^3 \sec^2(\theta) d\theta$

Solve the following differential equations.

21.  $f'(x) = \sqrt{x}(6 + 5x)$  where  $f(1) = 10$

22.  $f''(\theta) = \sin(\theta) + \cos(\theta)$  where  $f(0) = 3$  and  $f'(0) = 4$

23. Use the midpoint rule with the given value of  $n$  to approximate the following integral.

$\int_0^2 \cos(x^3) dx$  where  $n=6$ . Approximate your answer to the nearest ten thousandths.

24. What is your test 1 score?

25. What is your test 2 score?

26. What is your test 3 score?

27. What is your total extra credit points?

28. What is your name?