



AMAT 122 SPRING 2009 TEST 1 PRACTICE PROBLEMS

QUESTION 1

Evaluate the following indefinite integrals:

1. $\int (x^3 - 2x^2 + 6x + 5)dx$

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

3. $\int (\frac{7}{x^3} + \sqrt{x} + \frac{3}{\sqrt{x}})dx$

4. $\int (3 \cos(2x) - 2 \sin(3x) + \sec^2 x)dx$

5. $\int (4x^{4e-1} + e^{4x} + (4x)^{(e-1)} + \frac{4}{x})dx$

6. $\int x \cdot (x^2 + 9)^5 dx$

7. $\int 3x^2 \cdot (x^3 + 1)^9 dx$

8. $\int x^2 \cdot \cos(x^3 + 6)dx$

9. $\int \sin x \cdot \cos^{11} x dx$

10. $\int \frac{\cos x}{(\sin x)^{10}} dx$

11. $\int (2x + 1) \cdot e^{x^2+x+3} dx$

12. $\int \frac{1}{(2x + 5)^3} dx$

13. $\int \frac{4x}{\sqrt{1-x^2}} dx$

14. $\int \frac{1}{9+9x^2} dx$

15. $\int \frac{1}{1+9x^2} dx$

16. $\int \frac{x}{9+x^2} dx$

17. $\int \frac{1}{9+x^2} dx$

18. $\int \frac{x^2}{9+x^2} dx$

19. $\int \frac{4x+5}{9+x^2} dx$

20. $\int \frac{1}{25+4x^2} dx$

21. $\int \frac{7x}{25+4x^2} dx$

22. $\int \frac{x^2}{25+x^2} dx$

23. $\int x \cdot e^x dx$

24. $\int x \cdot \sin 2x dx$

25. $\int \ln x \cdot x dx$

26. $\int x \cdot e^{-3x} dx$

27. $\int \ln x dx$

QUESTION 2

Evaluate the following definite integrals:

1. $\int_{-1}^1 92 \cdot x^{91} dx$

2. $\int_2^3 \frac{x+2}{x} dx$

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

4. $\int_0^6 \sqrt{6-x} dx$

5. $\int_{-1}^0 (2x+1)^9 dx$

6. $\int_{-1}^1 f(x) dx, f(x) = \begin{cases} 2x+1, & x < 0 \\ x^2 - 1, & x \geq 0 \end{cases}$

7. $\int_0^1 e^{-x} \cdot x dx$

8. $\int_0^1 x \cdot e^{x^2} dx$