MATH 126 Calculus II - Integration Skills Problems

1. Evaluate the integral $\int 8t^3 e^{t^4}\, dt$
2. Evaluate the integral $\int 9x^2 \cos(x^3)\, dx$
3. Evaluate the integral $\int \frac{6x}{x^2+1}\, dx$
4. Evaluate the integral $\int \frac{4\ln(t)}{t}\, dt$
5. Evaluate the integral $\int \frac{4x}{(x^2+3)^2}\, dx$
6. Evaluate the integral $\int x^2 \ln(x)\, dx$
7. Evaluate the integral $\int t \sin(t)\, dt$
8. Evaluate the integral $\int xe^x\, dx$
9. Evaluate the integral $\int t^4 \ln(t)\, dt$
10. Evaluate the integral $\int x \cos(x)\, dx$
11. Evaluate the integral $\int \sin^3(x)\cos^4(x)\, dx$
12. Evaluate the integral $\int \sin^4(t)\cos^3(t)\, dt$
13. Evaluate the integral $\int \cos^3(x)\, dx$
14. Evaluate the integral $\int \sec^4(x)\tan^2(x)\, dx$
15. Evaluate the integral $\int \sec^3(t)\tan^3(t)\, dt$
16. Rewrite the integral entirely in terms of trigonometric functions $\int \sqrt{9-x^2}\, dx$ (Do not evaluate)
17. Rewrite the integral entirely in terms of trigonometric functions $\int \sqrt{x^2-16}\, dx$ (Do not evaluate)
18. Rewrite the integral entirely in terms of trigonometric functions $\int \sqrt{4+x^2}\, dx$ (Do not evaluate)
19. Rewrite the integral entirely in terms of trigonometric functions $\int (25-x^2)^{3/2}\, dx$ (Do not evaluate)
20. Rewrite the integral entirely in terms of trigonometric functions $\int x^2\sqrt{x^2+1}\, dx$ (Do not evaluate)

Questions continue on next page

21. Decompose the function in to partial fractions (you must find the constants) $\dfrac{4x+8}{x^2+2x-3}$

22. Decompose the function in to partial fractions (you must find the constants) $\dfrac{x+1}{x^2-5x+6}$

23. Decompose the function in to partial fractions (you must find the constants) $\dfrac{5x+1}{x^2+3x+2}$

24. Decompose the function in to partial fractions (you must find the constants) $\dfrac{2x+3}{x(x^2+1)}$

25. Decompose the function in to partial fractions (you must find the constants) $\dfrac{3x+5}{x^2(x+1)}$