Math 112
Gateway Exam Practice

1. $\displaystyle\int \frac{x+2}{\sqrt{x^2+4x+1}}\,dx$

2. $\displaystyle\int 3x\cos(-x)\,dx$

3. $\displaystyle\int_0^{\frac{\pi}{2}} \sin(x)(2\cos(x)+3)\,dx$

4. $\displaystyle\int \frac{\ln(x)}{x^2}\,dx$

5. $\displaystyle\int \sin x\sqrt{\cos x}\,dx$

6. $\displaystyle\int \tan(x)\,dx$

7. $\displaystyle\int x^3\cos(x^4+2)\,dx$

8. $\displaystyle\int \sin(\sqrt{x})\,dx$

9. $\displaystyle\int e^{-x}\cos(2x)\,dx$

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

11. $\displaystyle\int \frac{2}{x^2+3x-4}\,dx$

12. $\displaystyle\int \frac{x-1}{x^2+3x+2}\,dx$

13. $\displaystyle\int \frac{x-9}{x^2+3x-10}\,dx$

14. $\displaystyle\int e^{3x}\cos(2x)\,dx$

15. $\displaystyle\int x^{3/2}\ln x\,dx$

16. $\displaystyle\int_0^{\sqrt{\pi}} x\cos(x^2)\,dx$

17. $\displaystyle\int_0^1 \frac{e^x + 1}{e^x + x}\, dx$

18. $\displaystyle\int \frac{\sec x \cdot \tan x}{1 + \sec x}\, dx$

19. $\displaystyle\int x^3 \ln x \, dx$

20. $\displaystyle\int 3x^2 e^x \, dx$

21. $\displaystyle\int \sqrt{2x + 1}\, dx$

22. $\displaystyle\int x^2 e^x \, dx$

23. $\displaystyle\int_1^2 \frac{dx}{(3 - 5x)^2}$

24. $\displaystyle\int_1^e \frac{\ln(x)}{x}\, dx$

25. $\displaystyle\int \sqrt{x}\ln(x)\, dx$

26. $\displaystyle\int x^5 \ln(x)\, dx$

27. $\displaystyle\int \frac{x}{e^{2x}}\, dx$

28. $\displaystyle\int \sin(\sqrt{x})\, dx$

29. $\displaystyle\int e^{-x}\cos(2x)\, dx$

30. $\displaystyle\int e^{\sqrt{x}}\, dx$

31. $\displaystyle\int \frac{e^x}{e^{2x} - 5e^x + 6}\, dx$

32. $\displaystyle\int \frac{\sin(\sqrt{x})}{\sqrt{x}}\, dx$

33. $\displaystyle\int x^5 e^{x^3}\, dx$

34. $\displaystyle\int (\ln x)^2 \, dx$