

Show the work for each of the following integrations on separate paper. The solutions are listed in the second column. This project is worth 50 points. It is due at the beginning of class on _____. Five points will be deducted for each day it is late.

You will *not* be able to do all of the problems right away. Part of integration is 'seeing the procedure to use.' A few problems will require knowledge from Section 7.5.

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| 1. $\int \pi \sin(\pi x) dx$ | 2. $\int \frac{\cos x}{1 - \cos^2 x} dx$ | 3. $\int \frac{2x}{(x+1)^2} dx$ |
| 4. $\int \frac{\cos(\ln(4x^2))}{x} dx$ | 5. $\int \csc^2(\pi x) dx$ | 6. $\int 8x \sec^2(2x^2) dx$ |
| 7. $\int \frac{1}{3-2x} dx$ | 8. $\int \frac{1}{2\sqrt{x}} dx$ | 9. $\int \frac{1}{\sqrt{2x}} dx$ |
| 10. $\int 12w \sec(3w^2 + 1) \tan(3w^2 + 1) dw$ | 11. $\int \frac{\sin x - \cos x}{\sin x} dx$ | 12. $\int \frac{e^{-x}}{1+e^{-x}} dx$ |
| 13. $\int \tan^2 x dx$ | 14. $\int \frac{4}{1+9x^2} dx$ | 15. $\int \frac{5dx}{\sqrt{9-4x^2}}$ |
| 16. $\int \frac{2}{x} dx$ | 17. $\int \frac{2}{x^2} dx$ | 18. $\int 2x dx$ |
| 19. $\int \frac{e^{3t} dt}{\sqrt{9-e^{6t}}}$ | 20. $\int \frac{e^{\sqrt{x+1}}}{\sqrt{x+1}} dx$ | 21. $\int 10^{2x} dx$ |
| 22. $\int x e^{-x^2} dx$ | 23. $\int \frac{\csc^2 2t}{\sqrt{1+\cot 2t}} dt$ | 24. $\int (4x)(5^{-x^2}) dx$ |
| 25. $\int x(x^2 - 1)^3 dx$ | 26. $\int \tan^2(2x) dx$ | 27. $\int \sqrt{\cos x} \sin x dx$ |
| 28. $\int \frac{x}{x^2+1} dx$ | 29. $\int \frac{8}{x^2+1} dx$ | 30. $\int \frac{\sec^2 x}{\tan x} dx$ |
| 31. $\int \frac{\cos x}{\sin x + 1} dx$ | 32. $\int 5^2 dx$ | 33. $\int_0^{\pi/6} \sin 2x dx$ |
| 34. $\int_0^1 e^{2x} dx$ | 35. $\int_0^2 \frac{1}{x+1} dx$ | 36. $\int_0^{\sqrt{3}} x \sqrt{1+x^2} dx$ |
| 37. $\int_0^1 \frac{1+e^x}{1+x+e^x} dx$ | 38. $\int_0^1 \frac{x}{(1+2x^2)^3} dx$ | 39. $\int_1^2 5 dx$ |
| 40. $\int_{-1}^{-1/2} \frac{1}{x^2} dx$ | 41. $\int_0^{\pi} 2 \cos^2 x dx$ | 42. $\int_{\pi/2}^{\pi} \frac{\sin x}{1+\cos^2 x} dx$ |
| 43. $\int_{-1}^1 \frac{4}{(t+2)^3} dt$ | 44. $\int 2^{\sin x} \cos x dx$ | 45. $\int_e^{e^2} \frac{2}{x} dx$ |
| 46. $\int_1^{\sqrt{2}} x \sqrt{x^2 - 1} dx$ | 47. $\int_4^9 \frac{1}{\sqrt{x}} dx$ | 48. $\int_e^{e^2} \frac{1-t}{t} dt$ |
| 49. $\int_0^{\pi} \cos^2 x \sin x dx$ | 50. $\int_0^{\pi/4} \tan^2 x dx$ | |