

Integration Review

1. $\int_0^2 (x-1)^{25} dx$
2. $\int_1^2 \frac{\ln x}{x^2} dx$
3. $\int \sin^3 x \cos^2 x dx$
4. $\int_0^\pi \sin^4(3t) dt$
5. $\int \tan^3 x \sec x dx$
6. Find the average value of $f(x) = \sin^2 x \cos^3 x$ on the interval $[-\pi, \pi]$.
7. $\int \frac{x}{x-6} dx$
8. $\int \frac{2x+3}{(x+1)^2} dx$
9. $\int \frac{x^2 - x + 6}{x^3 + 3x} dx$
10. $\int_{-1}^1 \frac{e^{\arctan y}}{1+y^2} dy$
11. $\int x \sin^2 x dx$
12. $\int x \cos 3x dx$
13. $\int \ln(x^2 - 1) dx$
14. $\int_{-1}^1 x^8 \sin x dx$ (this has a trick, do not do it by parts!)
15. $\int x^5 e^{-x^3} dx$
16. $\int e^{\sqrt{x}} dx$
17. $\int \frac{r}{\sqrt{49-r^2}} dr$
18. $\int \frac{1}{x\sqrt{\ln x}} dx$
19. $\int \frac{1}{(1-x^2)^{3/2}} dx$