Integral Practice Problems

Evaluate the following integrals. Note: The last two pages are significantly more challenging.

1. $\int e^{\sqrt{x}}\,dx =$

2. $\int \frac{\cos x}{\sqrt{2-\sin^2 x}}\,dx =$

3. $\int \frac{1}{x \ln x}\,dx =$

4. $\int \frac{x^5 + \sqrt[3]{x} - 1}{x^{\frac{4}{3}}}\,dx =$

5. $\int x \sec x \tan x\,dx =$

6. $\displaystyle\int \frac{x}{\sqrt{x-1}}\,dx =$

7. $\displaystyle\int \frac{\sec x \tan x}{1+\sec x}\,dx =$

8. $\displaystyle\int x \tan^{-1} x\,dx =$

9. $\displaystyle\int \frac{5x+1}{x^3-x}\,dx =$

10. $\displaystyle\int x \sin(5x^2+2)\,dx =$

11. $\int \left(\sin^{-1} x\right)^2 \, dx =$

12. $\int x \sin^{-1} x \, dx =$

13. $\int \sin^{-1} \sqrt{x} \, dx =$

14. $\int \dfrac{1}{1 - \tan^2 x} \, dx =$

15. $\int \ln\left(\sqrt{x} + \sqrt{x+1}\right) \, dx =$

16. $\int \frac{1}{x - \sqrt{1 - x^2}}\, dx =$

17. $\int \frac{2e^{2x} - e^x}{\sqrt{3e^{2x} - 6e^x - 1}}\, dx =$

18. $\int \frac{1}{x^6 - 1}\, dx =$

19. $\int \frac{1}{x^4 + 4}\, dx =$

20. $\int \frac{1}{x(x+1)(x+2)\cdots(x+n)}\, dx =$