
Complete the following problems. Show all work to receive full credit.

1. $\int \frac{(\ln x)^2}{x} dx$

2. $\int \frac{\tan^{-1} x}{1+x^2} dx$

3. $\int \frac{(1+\sqrt{x})^9}{\sqrt{x}} dx$

4. $\int \sec x \tan x \sqrt{1+\sec x} dx$

5. $\int \cos x \cos(\sin x) dx$

6. $\int \sec^4 x \tan x dx$

7. $\int \sin^5 \theta d\theta$

8. $\int \frac{\sin^{-1} x}{\sqrt{1-x^2}} dx$

9. $\int x e^{-x^2} dx$

10. $\int \cos x dx$

11. $\int \frac{3}{(2-x)^2} dx$

12. $\int \tan x dx$

13. $\int \frac{1}{\sqrt{1-3x}} dx$

14. $\int \frac{1}{\sqrt{1-9x^2}} dx$

15. $\int (e^{-x} + 4^x) dx$

16. $\int (\cos^2 x + \sin^2 x) dx$

17. $\int \pi dx$

18. $\int \frac{4}{x + x(\ln x)^2} dx$

19. $\int \frac{x^2 + 4}{x} dx$

20. $\int \frac{\csc \theta}{\csc \theta - \sin \theta} d\theta$

21. $\int \frac{e^x}{1 + e^{2x}} dx$

22. $\int x^{-2} + x^3 + 2x + 5 dx$

23. $\int e^x + x^e + e dx$

24. $\int \frac{1}{x} dx$

25. $\int 3 \sin x - 5 \cos x dx$

26. $\int x(x^2 - 3)^{49} dx$

27. $\int \frac{x - 2}{x^2 - 4x} dx$

28. $\int x \sin(x^2) dx$