

MISSION NDA MATHEMATICS

COMPLETE TOPICWISE QUESTIONS

INDEFINITE INTEGRATION

- If $\int \frac{x \tan^{-1} x}{\sqrt{1+x^2}} dx = \sqrt{1+x^2} f(x) + A \log(x + \sqrt{x^2+1}) + c$, then
 - $f(x) = \tan^{-1} x, A = -1$
 - $f(x) = \tan^{-1} x, A = 1$
 - $f(x) = 2 \tan^{-1} x, A = -1$
 - $f(x) = 2 \tan^{-1} x, A = 1$
- $\int \frac{a^{x/2}}{\sqrt{a^{-x}-a^x}} dx$ is equal to
 - $\frac{1}{\log a} \sin^{-1}(a^x) + c$
 - $\frac{1}{\log a} \tan^{-1}(a^x) + c$
 - $2\sqrt{a^{-x}-a^x} + c$
 - $\log(a^x - 1) + c$
- $\int \frac{a+b \sin x}{(b+a \sin x)^2} dx$ equals
 - $\frac{-\cos x}{b+a \sin x}$
 - $\frac{\cos x}{b+a \sin x}$
 - $\frac{\sin x}{b+a \sin x}$
 - none of these
- The value of $\int e^{\sin^2 x} \sin 2x dx$ is
 - $e^{\sin 2x} + c$
 - $e^{\sin^2 x} + c$
 - $\sin^2 x + c$
 - $\sin 2x + c$
- $\int \left(x + \frac{1}{x}\right)^2 dx =$
 - $\frac{1}{3} \left(x + \frac{1}{x}\right)^3 + c$
 - $\frac{x^3}{3} + 2x - \frac{1}{x} + c$
 - $\frac{x^3}{3} + 2x + \frac{1}{x} + c$
 - none of these
- $\int \frac{1}{(1-x^8)} \left(\cos^{-1} \frac{2x}{1+x^2} + \tan^{-1} \frac{2x}{1-x^2} \right) dx$ is equal to
 - $\frac{\pi}{16} \log \left| \frac{1+x}{1-x} \right| + \frac{\pi}{8} \tan^{-1} x + \frac{\pi}{8\sqrt{2}} \tan^{-1} \left(\frac{x^2-1}{\sqrt{2}x} \right) - \frac{\pi}{16\sqrt{2}} \log \left| \frac{x^2+\sqrt{2}x+1}{x^2+\sqrt{x}+1} \right| + c$
 - $\frac{\pi}{16} \log \left| \frac{1-x}{1+x} \right| + \frac{\pi}{8} \tan^{-1} x + \frac{\pi}{8\sqrt{2}} \tan^{-1} \left(\frac{x^2+1}{\sqrt{2}x} \right) - \frac{\pi}{16\sqrt{2}} \log \left| \frac{x^2-\sqrt{2}x+1}{x^2+\sqrt{x}+1} \right| + c$
 - $\frac{\pi}{16} \log \left| \frac{1-x}{1+x} \right| + \frac{\pi}{8} \tan^{-1} x + \frac{\pi}{8\sqrt{2}} \tan^{-1} \left(\frac{x^2+1}{\sqrt{2}x} \right) - \frac{\pi}{16\sqrt{2}} \log \left| \frac{x^2+\sqrt{2}x+1}{x^2-\sqrt{x}+1} \right| + c$
 - none of these
- $\int \frac{dx}{\sin x - \cos x + \sqrt{2}}$ equals
 - $-\frac{1}{\sqrt{2}} \tan \left(\frac{x}{2} + \frac{\pi}{8} \right) + c$
 - $\frac{1}{\sqrt{2}} \tan \left(\frac{x}{2} + \frac{\pi}{8} \right) + c$
 - $\frac{1}{\sqrt{2}} \cot \left(\frac{x}{2} + \frac{\pi}{8} \right) + c$
 - $-\frac{1}{\sqrt{2}} \cot \left(\frac{x}{2} + \frac{\pi}{8} \right) + c$
- $\int (x^x)^2 (1 + \log x) dx$
 - $\frac{(x^x)^2}{2} + k$
 - $x^x + k$
 - $\frac{x^x}{2} + k$
 - none of these



9. The value of $\int \frac{\sin x}{3+4\cos^2 x} dx$ is
- (a) $\log(3 + 4\cos^2 x) + c$
- (b) $\frac{-1}{2\sqrt{3}} \tan^{-1} \left(\frac{\cos x}{\sqrt{3}} \right) + c$
- (c) $\frac{-1}{2\sqrt{3}} \tan^{-1} \left(\frac{2\cos x}{\sqrt{3}} \right) + c$
- (d) $\frac{1}{2\sqrt{3}} \tan^{-1} \left(\frac{2\cos x}{\sqrt{3}} \right) + c$
10. $\int \frac{x^5}{x^2+1} dx =$
- (a) $\frac{x^4}{4} + \frac{x^2}{2} + \tan^{-1} x + c$
- (b) $\frac{x^4}{4} - \frac{x^2}{2} + \frac{1}{2} \log(x^2 + 1) + c$
- (c) $\frac{x^4}{4} + \frac{x^3}{3} + \tan^{-1} x + c$
- (d) $\frac{x^4}{4} + \frac{x^3}{3} - \tan^{-1} x + c$
11. If $\int x \log \left(1 + \frac{1}{x} \right) dx = f(x) \log(x+1) + g(x)x^2 + Lx + c$, then
- (a) $f(x) = \frac{x^2}{2}$
- (b) $g(x) = \log x$
- (c) $L = 1$
- (d) none of these
12. $\int \frac{dx}{1-\cos x - \sin x}$ is equal to
- (a) $\log \left| 1 + \cot \frac{x}{2} \right| + c$
- (b) $\log \left| 1 - \tan \frac{x}{2} \right| + c$
- (c) $\log \left| 1 - \cot \frac{x}{2} \right| + c$
- (d) $\log \left| 1 + \tan \frac{x}{2} \right| + c$
13. $\int \frac{(x-1)e^x}{(x+1)^3} dx$ is
- (a) $\frac{e^x}{x+1}$
- (b) $e^x \left(\frac{x}{x+1} \right)$
- (c) $\frac{e^x(x-1)}{(x+1)^2}$
- (d) $\frac{e^x}{(x+1)^2}$
14. The value of $\int \frac{\sin x}{\sqrt{4-\cos^2 x}} dx$ is
- (a) $\sin^{-1} \left(\frac{\cos x}{2} \right) + c$
- (b) $\frac{1}{2} \sin^{-1} \left(\frac{\cos x}{2} \right) + c$
- (c) $-\frac{1}{2} \sin^{-1} \left(\frac{\cos x}{2} \right) + c$
- (d) $-\sin^{-1} \left(\frac{\cos x}{2} \right) + c$
15. $\int \frac{\sin 2x dx}{a^2 \sin^2 x + b^2 \cos^2 x} dx =$
- (a) $\log(a^2 \sin^2 x + b^2 \cos^2 x) + c$
- (b) $\frac{1}{a^2 - b^2} \log(a^2 \sin^2 x + b^2 \cos^2 x) + c$
- (c) $a^2 \sin^2 x + b^2 \cos^2 x$
- (d) none of these
16. $\int \frac{\sin^8 x - \cos^8 x}{1 - 2 \sin^2 x \cos^2 x} dx =$
- (a) $\frac{1}{2} \sin 2x + c$
- (b) $-\frac{1}{2} \sin 2x + c$
- (c) $-\frac{1}{2} \sin x + c$
- (d) $-\sin^2 x + c$
17. $\int \frac{dx}{7+5\cos x}$ is equal to
- (a) $\frac{1}{\sqrt{6}} \tan^{-1} \left(\frac{1}{\sqrt{6}} \tan \frac{x}{2} \right) + c$
- (b) $\frac{1}{\sqrt{3}} \tan^{-1} \left(\frac{1}{\sqrt{3}} \tan \frac{x}{2} \right) + c$
- (c) $\frac{1}{4} \tan^{-1} \left(\tan \frac{x}{2} \right) + c$
- (d) $\frac{1}{7} \tan^{-1} \left(\tan \frac{x}{2} \right) + c$
18. $\int \frac{\log(x/e)}{(\log x)^2} dx$ is
- (a) $\frac{\log x}{x}$
- (b) $\frac{x}{\log x}$
- (c) $\frac{x}{(\log x)^2}$
- (d) none of these



19. $\int \frac{\sin(x-a)}{\sin(x+a)} dx =$
 (a) $x \cos 2a + \sin 2a \log |\sin(x+a)| + c$
 (b) $x \cos 2a - \sin 2a \log |\sin(x+a)| + c$
 (c) $x \cos 2a + \cos 2a \log |\sin(x+a)| + c$
 (d) $x \sin 2a - \cos 2a \log |\sin(x+a)| + c$
20. If $\int \cot^{-1}(1-x+x^2) dx = x \tan^{-1} x - \frac{1}{2} \log(1+x^2) + A$, then A is equal to
 (a) $-(1-x) \tan^{-1}(1-x^2) + \frac{1}{2} \log[1+(1-x)^2] + c$
 (b) $(1-x) \tan^{-1}(1-x^2) + \frac{1}{2} \log[1+(1-x)^2] + c$
 (c) $-(1-x) \tan^{-1}(1-x) + \frac{1}{2} \log[1+(1-x)^2] + c$
 (d) none of these
21. $\int \frac{1+x+\sqrt{x+x^2}}{\sqrt{x}+\sqrt{1+x}} dx$ is equal to
 (a) $\frac{1}{2} \sqrt{1+x} + c$
 (b) $\frac{2}{3} (1+x)^{3/2} + c$
 (c) $\sqrt{1+x} + c$
 (d) $2(1+x)^{3/2} + c$
22. $\int \left[\frac{1}{(x+a)^3(x+b)^5} \right]^{1/4} dx$ is equal to
 (a) $\frac{1}{(b-a)} \left(\frac{x+b}{x+a} \right)^{1/4} + k$
 (b) $-\frac{1}{(b-a)} \left(\frac{x+a}{x+b} \right)^{1/4} + k$
 (c) $\frac{4}{b-a} \left(\frac{x+a}{x+b} \right)^{3/4} + k$
 (d) $\frac{4}{b-a} \left(\frac{x+a}{x+b} \right)^{1/4} + k$
23. $\int \frac{dx}{\cos x + \sqrt{3} \sin x}$ equals
 (a) $\frac{1}{2} \log \tan \left(\frac{x}{2} - \frac{\pi}{12} \right) + c$
 (b) $\log \tan \left(\frac{x}{2} + \frac{\pi}{12} \right) + c$
 (c) $\log \tan \left(\frac{x}{2} - \frac{\pi}{12} \right) + c$
 (d) $\frac{1}{2} \log \tan \left(\frac{x}{2} + \frac{\pi}{12} \right) + c$
24. $\int \frac{xe^x}{(1+x)^2} dx$ is equal to
 (a) $\frac{e^x}{x+1} + c$
 (b) $e^x(x+1) + c$
 (c) $-\frac{e^x}{(x+1)^2} + c$
 (d) $\frac{e^x}{1+x^2} + c$
25. $\int \frac{dx}{\cos^3 x \sqrt{2} \sin 2x}$ is equal to
 (a) $\sqrt{\tan x} + \frac{\tan^{5/2} x}{5} + c$
 (b) $\sqrt{\tan x} + \frac{2}{5} \tan^{5/2} x + c$
 (c) $2\sqrt{\tan x} + \frac{2}{5} \tan^{5/2} x + c$
 (d) none of these
26. $\int \frac{x^2-1}{(x^4+3x^2+1) \tan^{-1}(x+1/x)} dx =$
 (a) $\tan^{-1}(x+1/x) + c$
 (b) $\cot^{-1}(x+1/x) + c$
 (c) $\log(x+1/x) + c$
 (d) $\log[\tan^{-1}(x+1/x)] + c$
27. $\int \frac{\sin \sqrt{x}}{\sqrt{x}} dx =$
 (a) $\cos \sqrt{x} + c$
 (b) $-2 \cos \sqrt{x} + c$
 (c) $2 \cos \sqrt{x} + c$
 (d) $2 \sin \sqrt{x} + c$



28. $\int x^{51}(\tan^{-1} x + \cot^{-1} x)dx =$
 (a) $\frac{x^{52}}{52}(\tan^{-1} x + \cot^{-1} x) + c$
 (b) $\frac{x^{52}}{52}(\tan^{-1} x - \cot^{-1} x) + c$
 (c) $\frac{\pi x^{52}}{104} + \frac{\pi}{2} + c$
 (d) $\frac{x^{52}}{52} \cdot \frac{\pi}{2} + c$
29. $\int \frac{\sqrt{5+x^{10}}}{x^{16}} dx$ is equal to
 (a) $-\frac{1}{75}\left(1 + \frac{5}{x^{10}}\right) + c$
 (b) $-\frac{1}{50}\left(1 + \frac{5}{x^{10}}\right)^{3/2} + c$
 (c) $-\frac{1}{50}\left(1 + \frac{5}{x^{10}}\right)^{1/2} + c$
 (d) $-\frac{1}{75}\left(1 + \frac{5}{x^{10}}\right)^{3/2} + c$
30. $\int e^{\tan^{-1} x} \left(1 + \frac{x}{1+x^2}\right) dx$ is equal to
 (a) $x e^{\tan^{-1} x}$
 (b) $\frac{1}{2} x e^{\tan^{-1} x}$
 (c) $e^{\tan^{-1} x}$
 (d) $\frac{1}{2} e^{\tan^{-1} x}$
31. $\int \frac{dx}{5+4 \sin x} =$
 (a) $\tan^{-1} \frac{5 \tan (x/2)+4}{3} + c$
 (b) $\frac{1}{3} \tan^{-1} \left(\frac{5x+4}{3}\right) + c$
 (c) $\frac{2}{3} \tan^{-1} \left(\frac{5 \tan (x/2)+4}{3}\right)$
 (d) none of these
32. $\int \frac{dx}{x(\log x)(\log \log x) \dots (\log \log \dots x)}$ is equal to
 (a) $\underbrace{(\log \log \dots x)}_{8 \text{ times}} + c$
 (b) $\underbrace{(\log \log \dots x)}_{7 \text{ times}} + c$
 (c) $\underbrace{(\log \log \dots x)}_{9 \text{ times}} + c$
 (d) none of these
33. $\int \frac{\sqrt{\tan x}}{2 \sin x \cos x} dx$ is equal to
 (a) $\sqrt{\tan x}$
 (b) $2\sqrt{\tan x}$
 (c) $\frac{1}{2} \sqrt{\tan x}$
 (d) $\frac{1}{2} \tan x$
34. $\int \frac{1}{\sin^2 x \cos^2 x} dx =$
 (a) $\tan x + \cot x + c$
 (b) $\cot x - \tan x + c$
 (c) $\tan x - \cot x + c$
 (d) none of these
35. If $\int \frac{dx}{\cos^3 x \sqrt{\sin 2x}} = a(\tan^2 x + b)\sqrt{\tan x} + c$, then
 (a) $a = \frac{\sqrt{2}}{5}, b = \frac{1}{\sqrt{5}}$
 (b) $a = \frac{\sqrt{2}}{5}, b = 5$
 (c) $a = \frac{\sqrt{2}}{5}, b = -\frac{1}{\sqrt{5}}$
 (d) $a = \frac{\sqrt{2}}{5}, b = \sqrt{5}$
36. $\int e^{e^x} \cdot e^{e^x} \cdot e^x dx$ is equal to
 (a) $\frac{1}{2} 2e^{e^x}$
 (b) $\left(e^{e^x}\right)^2$
 (c) e^{e^x}
 (d) $\frac{1}{2} e^{e^x}$
37. If $\int \frac{1}{(x^2+1)(x^2+4)} dx = A \tan^{-1} x + B \tan^{-1} \frac{x}{2} + c$, then
 (a) $A = \frac{1}{3}$
 (b) $B = \frac{2}{3}$
 (c) $A = -\frac{1}{3}$
 (d) $B = -\frac{1}{6}$



38. $\int \frac{x^2-1}{(x^4+3x^2+1)\tan^{-1}[x+(1/x)]} dx$ is equal to
 (a) $\tan^{-1}\left(x + \frac{1}{x}\right) + c$
 (b) $\cot^{-1}\left(x + \frac{1}{x}\right) + c$
 (c) $\log\left(x + \frac{1}{x}\right) + c$
 (d) $\log\left[\tan^{-1}\left(x + \frac{1}{x}\right)\right] + c$
39. $\int \frac{dx}{\sin(x-a)\sin(x-b)} =$
 (a) $\frac{1}{\sin(a-b)} \log\left|\frac{\sin(x-a)}{\sin(x-b)}\right|$
 (b) $\frac{1}{\sin(b-a)} \log\left|\frac{\sin(x-b)}{\sin(x-a)}\right| + c$
 (c) $\frac{1}{\sin(b-a)} \log|\sin(x-a)\sin(x-b)| + c$
 (d) none of these
40. $\int \frac{\sin 2x}{\sin^4 + \cos^4 x} dx =$
 (a) $\tan^{-1}(\tan^2 x) + c$
 (b) $\tan^{-1}(\cot^2 x) + c$
 (c) $\cot^{-1}(\tan^2 x) + c$
 (d) $\cot^{-1}(\cot^2 x) + c$
41. $\int \frac{dx}{(\sin x - 2\cos x)(2\sin x + \cos x)}$ is equal to
 (a) $\log_e \sqrt[5]{\frac{\tan x - 2}{2\tan x + 1}} + c$
 (b) $\frac{1}{4} \log\left(\frac{\tan x - 2}{\tan x + 2}\right) + c$
 (c) $-\frac{1}{4} \log\left(\frac{2\sin x - \cos x}{\sin x + 2\cos x}\right) + c$
 (d) none of these
42. $\int \frac{dx}{1 + \sin x + \cos x} =$
 (a) $\log\left|1 + \cot \frac{x}{2}\right|$
 (b) $\log|1 + \tan x| + c$
 (c) $\log\left|1 + \tan \frac{x}{2}\right| + c$
 (d) none of these
43. $\int 5^{5^{5^x}} \cdot 5^{5^x} \cdot 5^x dx$ is equal to
 (a) $\frac{5^{5^x}}{(\log 5)^3} + c$
 (b) $5^{5^{5^x}} (\log 5)^3 + c$
 (c) $\frac{5^{5^{5^x}}}{(\log 5)^3} + c$
 (d) none of these
44. If $f(x) = \lim_{n \rightarrow \infty} n^2(x^{1/n} - x^{1/(n+1)})$, $x > 0$, then $\int xf(x)dx$ is equal to
 (a) $x^2/2$
 (b) 0
 (c) $x^2 \log x - \frac{1}{2}x^2 + c$
 (d) none of these
45. $\int \frac{2\cos x}{\sin x + \cos x} dx =$
 (a) $\frac{x}{2} + \frac{1}{2} \log|\sin x + \cos x| + c$
 (b) $x - \log|\sin x + \cos x| + c$
 (c) $x + \log|\sin x + \cos x| + c$
 (d) none of these
46. $\int \frac{\sin x}{\sin x - \cos x} dx =$
 (a) $x + \log(\sin x - \cos x) + c$
 (b) $\frac{1}{2}[x + \log(\sin x - \cos x)] + c$
 (c) $\frac{1}{2}[x + \log(\sin x + \cos x)] + c$
 (d) $\frac{1}{2}[x - \log(\sin x + \cos x)] + c$
47. The value of $\int \frac{dx}{(2\sin x + \cos x)^2}$ is
 (a) $\frac{1}{2 + \cot x} + c$
 (b) $-\frac{1}{2}\left(\frac{1}{2\tan x - 1}\right) + c$
 (c) $\frac{1}{2}\left(\frac{1}{2\tan x + 1}\right) + c$
 (d) $\frac{1}{2} \log(2\tan x + 1) + c$



48. $\int \frac{\cos 5x + \cos 4x}{1 - 2\cos 3x} dx$ is equal to
- (a) $\frac{\sin 2x}{2} + \sin x + c$ (b) $-\frac{\sin 2x}{2} - \sin x + c$
 (c) $\frac{\sin 2x}{2} - \sin x + c$ (d) $-\frac{\sin 2x}{2} + \sin x + c$
49. $\int \frac{\sin x + \cos x}{\sqrt{1 + \sin 2x}} dx =$
- (a) $\cos x + c$ (b) $x + c$
 (c) $\sin x + c$ (d) $\tan x + c$
50. The value of $\int \frac{e^{\tan^{-1} x}}{(1+x^2)} dx$ is
- (a) $\tan^{-1} x + c$ (b) $e^{\tan^{-1} x} + c$
 (c) $\frac{1}{1+x^2} + c$ (d) $\frac{2xe^{\tan^{-1} x}}{(1+x^2)^2} + c$
51. $\int (\sqrt{\tan x} + \sqrt{\cot x}) dx =$
- (a) $\sqrt{2}\sin^{-1}(\sin x - \cos x) + c$ (b) $\sqrt{2}\sin^{-1}(\sin x + \cos x) + c$
 (c) $\sqrt{2}\tan^{-1}(\sin x - \cos x) + c$ (d) none of these
52. If $I = \int (\sqrt{\cot x} - \sqrt{\tan x}) dx$, then I equals
- (a) $\sqrt{2}\log(\sqrt{\tan x} - \sqrt{\cot x}) + c$ (b) $\sqrt{2}\log|\sin x + \cos x + \sqrt{\sin 2x}| + c$
 (c) $\sqrt{2}\log|\sin x - \cos x + \sqrt{2}\sin x \cos x| + c$ (d) $\sqrt{2}\log|\sin(x + \pi/4) + \sqrt{2}\sin x \cos x| + c$
53. $\int \frac{\cos^3 x + \cos^5 x}{\sin^2 x + \sin^4 x} dx$ equals
- (a) $\sin x - 2(\sin x)^{-1} + c$ (b) $\sin x - 6\tan^{-1}(\sin x) + c$
 (c) $\sin x - 2(\sin x)^{-1} - 6\tan^{-1}(\sin x) + c$ (d) $\sin x - 2(\sin x)^{-1} + 5\tan^{-1}(\sin x) + c$
54. The value of $\int e^{\log(\tan x)} dx$ is
- (a) $\tan x + c$ (b) $\log(\sec x) + c$
 (c) $\log(\tan x) + c$ (d) $e^{\tan x} + c$
55. If $I = \int \frac{x^5}{\sqrt{1+x^3}} dx$, then I is equal to
- (a) $\frac{2}{9}(1+x^3)^{5/2} + \frac{2}{3}(1+x^3)^{3/2} + c$ (b) $\frac{2}{9}(1+x^3)^{5/2} - \frac{2}{3}(1+x^3)^{1/2} + c$
 (c) $\log|\sqrt{x} + \sqrt{1+x^3}| + c$ (d) $x^2\log(1+x^3) + c$
56. $\int \frac{\sin \theta + \cos \theta}{\sqrt{\sin 2\theta}} d\theta$ equals
- (a) $\log|\cos \theta - \sin \theta + \sqrt{\sin 2\theta}|$ (b) $\log|\sin \theta - \cos \theta + \sqrt{\sin 2\theta}|$
 (c) $\sin^{-1}(\sin \theta - \cos \theta) + c$ (d) $\sin^{-1}(\sin \theta + \cos \theta) + c$
57. The value of $\int \frac{1 - \tan x}{1 + \tan x} dx$ is
- (a) $\log\left[\sec\left(\frac{\pi}{4} - x\right)\right] + c$ (b) $\log\left[\cos\left(\frac{\pi}{4} + x\right)\right] + c$
 (c) $\log\left[\sin\left(\frac{\pi}{4} + x\right)\right] + c$ (d) $\log\left[\tan\left(\frac{\pi}{2} + x\right)\right] + c$
58. If $I = \int \frac{dx}{\sin(x-a)\cos(x-b)}$, then I is equal to
- (a) $\frac{1}{\sin(a-b)} \log\left|\frac{\sin(x-a)}{\cos(x-b)}\right| + c$ (b) $\frac{1}{\cos(a-b)} \log\left|\frac{\sin(x-a)}{\cos(x-b)}\right| + c$
 (c) $\frac{1}{\sin(a+b)} \log\left|\frac{\sin(x-a)}{\cos(x-b)}\right| + c$ (d) $\frac{1}{\cos(a+b)} \log\left|\frac{\sin(x-a)}{\cos(x-b)}\right| + c$



59. $\int \sqrt[3]{\frac{\sin^n x}{\cos^{n+6} x}} dx, n \in N$, is equal to

(a) $\frac{3}{n} (\tan x)^{(n/3)+1} + c$

(b) $\frac{3}{3+n} (\tan x)^{(n/3)+1} + c$

(c) $\frac{3}{n} (\cos x)^{n+1} + c$

(d) none of these

60. $\int \sqrt{\tan \theta} d\theta$ is equal to

(a) $\frac{1}{\sqrt{2}} \tan^{-1} \left(\frac{x^2-1}{\sqrt{2}x} \right) + \frac{1}{2\sqrt{2}} \log \left| \frac{x^2-\sqrt{2}x+1}{x^2+\sqrt{2}x+1} \right| + c$

(b) $\frac{1}{2\sqrt{2}} \tan^{-1} \left(\frac{x^2-1}{\sqrt{2}x} \right) + \frac{1}{2\sqrt{2}} \log \left| \frac{x^2-\sqrt{2}x+1}{x^2+\sqrt{2}x+1} \right| + c$

(c) $\frac{1}{2\sqrt{2}} \tan^{-1} \left(\frac{x^2+1}{\sqrt{2}x} \right) + \frac{1}{\sqrt{2}} \log \left| \frac{x^2+\sqrt{2}x+1}{x^2+\sqrt{2}x+1} \right| + c$

(d) none of these

ANSWER KEY

1. (a)

2. (a)

3. (a)

4. (b)

5. (b)

6. (a)

9. (c)

10. (b)

11. (d)

12. (c)

13. (d)

14. (d)

17. (a)

18. (b)

19. (b)

20. (c)

21. (b)

22. (d)

25. (a)

26. (d)

27. (b)

28. (a), (d)

29. (d)

30. (a)

33. (a)

34. (c)

35. (b)

36. (c)

37. (a) and

38. (d)

41. (a)

42. (c)

43. (c)

44. (d)

45. (c)

46. (b)

49. (b)

50. (b)

51. (a)

52. (b)

53. (c)

54. (b)

57. (c)

58. (b)

59. (b)

60. (a)



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