INTEGRALS **CM120701**

Q(1-32) Integrate:

1. $\int \left(sin^{-1}\sqrt{x} + cos^{-1}\sqrt{x}\right)dx$
2. $\int \frac{1}{1-sin^2 x}\,dx$
3. $\int \left(8^x + x^8 + \frac{8}{x} + \frac{x}{8}\right)dx$
4. $\int \frac{1}{x\log x \log(\log x)}\,dx$
5. $\int tan^{-1}(sec\,x + tan\,x)\,dx$
6. $\int \frac{sin^8 x - cos^8 x}{1-2\,sin^2 x\,cos^2 x}\,dx$
7. $\int \frac{1}{e^x+1}\,dx$
8. $\int \frac{1}{x^{\frac{1}{2}}+x^{\frac{1}{3}}}\,dx$
9. $\int 2^{2^{2^x}}2^{2^x}2^x\,dx$
10. $\int \frac{sin\,4x}{sin\,x}\,dx$
11. $\int \frac{cos^9 x}{sin\,x}\,dx$
12. $\int (2x-5)\sqrt{x^2-4x+3}dx$
13. $\int \frac{1}{x(x^n+1)}\,dx$
14. $\int \frac{(1-x^2)}{x(1-2x)}\,dx$
15. $\int \frac{1}{4\,sin^2 x + 5\,cos^2 x}\,dx$
16. $\int \frac{1}{sin^2 x + sin^2 2x}\,dx$
17. $\int \frac{cos\,x}{cos\,3x}\,dx$
18. $\int \frac{1}{x\log x(2+\log x)}\,dx$
19. $\int \frac{x}{(x+1)(x^2+1)}\,dx$
20. $\int \frac{sin\,x}{sin\,4x}\,dx$
21. $\int \frac{sin^{-1}x}{x^2}\,dx$
22. $\int e^x \frac{x}{(x+1)^2}\,dx$
23. $\int \left(\frac{1}{\log x} - \frac{1}{(\log x)^2}\right)dx$
24. $\int_e^{e^2} \left\{\frac{1}{\log x} - \frac{1}{(\log x)^2}\right\}dx$
25. If $\int_0^k \frac{1}{2+8x^2}\,dx = \frac{\pi}{16}$, find the value of k.
26. $\int_0^{\pi/2} \frac{sin\,x\,cos\,x}{cos^2 x + 3\,cos\,x + 2}\,dx$
27. $\int_0^a \sqrt{\frac{a-x}{a+x}}\,dx$
28. $\int_0^{\pi} 5(5-4\,cos\,x)^{\frac{1}{4}}sinx\,dx$
29. $\int_0^{\pi/4} \left(\sqrt{tan\,x} + \sqrt{cot\,x}\right)dx$
30. $\int_0^2 |x^2 - 3x + 2|dx$
31. $\int_0^{\infty} \frac{log\,x}{1+x^2}\,dx$
32. $\int_0^{\frac{\pi}{2}} (2\ logcos\,x - logsin\,2\,x)dx$