Integrate

1. $\int (5x + 4)^5 \, dx$

2. $\int 3t^2 (t^3 + 4)^5 \, dt$

3. $\int \sqrt{4x - 5} \, dx$

4. $\int t^2 (t^3 + 4)^{-1/2} \, dt$

5. $\int \cos(2x + 1) \, dx$

6. $\int \sin^{10} x \cos x \, dx$

7. $\int \frac{\sin x}{(\cos x)^5} \, dx$

8. $\int \frac{(\sqrt{x}-1)^2}{\sqrt{x}} \, dx$

9. $\int \sqrt{x^3 + x^2}(3x^2 + 2x) \, dx$

10. $\int_{-1}^{1} \frac{x+1}{(x^2+2x+2)^3} \, dx$

11. $\int_0^\pi \cos x \sqrt{\sin x} \, dx$

12. $\int (x + 1) \sin(x^2 + 2x + 3) \, dx$

13. $\int \left(1 + \frac{1}{t}\right)^3 \frac{1}{t^2} \, dt$

14. $\int_{-1}^{1} x^2 \sqrt{x^3 + 1} \, dx$

15. $\int \frac{2}{\sqrt{3x-7}} \, dx$

16. $\int_1^4 \frac{1}{\sqrt{x}(\sqrt{x}+1)^2} \, dx$

17. $\int_0^1 \frac{x}{\sqrt{x+1}} \, dx$

18. $\int x\sqrt{2x + 1} \, dx$

19. $\int \sqrt{x}\sqrt{x\sqrt{x} + 1} \, dx$

20. $\int x^3 \sqrt{x^2 - 1} \, dx$

21. $\int (x^2 + 1)\sqrt{x - 2} \, dx$

22. $\int \frac{x^2+2x}{x^2+2x+1} \, dx$

23. $\int \frac{1}{x^2+6x+9} \, dx$

24. $\int \frac{\sec^2 x}{(1+\tan x)^3} \, dx$

25. $\int \frac{\sin x}{(2+3\cos x)^2} \, dx$

26. $\int x \tan(x^2) \sec(x^2) \, dx$

27. $\int 3t^3 (t^2 + 4)^5 \, dt$

28. $\int (\tan 2x + \cot 2x)^2 \, dx$

Solutions

1. $\frac{1}{30}(5x+4)^6 + C$

2. $\frac{1}{6}(t^3+4)^6 + C$

3. $\frac{1}{6}(4x-5)^{3/2} + C$

4. $\frac{2}{3}(t^3+4)^{1/2} + C$

5. $\frac{1}{2}\sin(2x+1) + C$

6. $\frac{1}{11}\sin^{11}x + C$

7. $\frac{1}{4}(\cos x)^{-4} + C$

8. $\frac{2}{3}x^{3/2} - 2x + 2x^{1/2} + C$

9. $\frac{2}{3}(x^3+x^2)^{3/2} + C$

10. $-\frac{1}{4}(x^2+2x+2)^{-2}\Big|_{-1}^{1} = \frac{6}{25}$

11. $\frac{2}{3}(\sin x)^{3/2}\Big|_{0}^{\pi} = 0$

12. $-\frac{1}{2}\cos(x^2+2x+3) + C$

13. $-\frac{1}{4}\left(1+\frac{1}{t}\right)^4 + C$

14. $\frac{2}{9}(x^3+1)^{3/2}\Big|_{-1}^{1} = \frac{4\sqrt{2}}{9}$

15. $\frac{4}{3}(3x-7)^{1/2} + c$

16. $-2(\sqrt{x}+1)^{-1}\Big|_{1}^{4} = \frac{1}{3}$

17. $\frac{2}{3}(x+1)^{3/2} - 2(x+1)^{1/2}\Big|_{0}^{1} = \frac{4-2\sqrt{2}}{3}$

18. $\frac{1}{10}(2x+1)^{5/2} - \frac{1}{6}(2x+1)^{3/2} + C$

19. $\frac{4}{9}(x^{3/2}+1)^{3/2} + C$

20. $\frac{1}{5}(x^2-1)^{5/2} + \frac{1}{3}(x^2-1)^{3/2} + C$

21. $\frac{2}{7}(x-2)^{\frac{7}{2}} + \frac{8}{5}(x-2)^{\frac{5}{2}} + \frac{10}{3}(x-2)^{\frac{3}{2}} + C$

22. $x + (x+1)^{-1} + C$

23. $-(x+3)^{-1} + C$

24. $-\frac{1}{2}(1+\tan x)^{-2} + C$

25. $\frac{1}{3}(2+3\cos x)^{-1} + C$

26. $\frac{1}{2}\sec(x^2) + C$

27. $\frac{3}{14}(t^2+4)^7 - (t^2+4)^6 + C$

28. $\frac{1}{2}\tan 2x - \frac{1}{2}\cot 2x + C$