Find the indefinite integrals:

1. $\int x^2(x+3)\,dx$ $\qquad\qquad\qquad$ $[\dfrac{x^4}{4}+x^3+c]$

2. $\int \sqrt{x}\,dx$ $\qquad\qquad\qquad$ $[\dfrac{2}{3}x^{\frac{3}{2}}+c]$

3. $\int \dfrac{1}{x^2}\,dx$ $\qquad\qquad\qquad$ $[-\dfrac{1}{x}+c]$

4. $\int \dfrac{1}{\sqrt{x}}\,dx$ $\qquad\qquad\qquad$ $[2\sqrt{x}+c]$

5. $\int \dfrac{1}{x^4}\,dx$ $\qquad\qquad\qquad$ $[-\dfrac{1}{3x^3}+c]$

6. $\int \dfrac{2}{x^3}\,dx$ $\qquad\qquad\qquad$ $[-\dfrac{1}{x^2}+c]$

7. $\int \sqrt[3]{x}\,dx$ $\qquad\qquad\qquad$ $[\dfrac{3}{4}x^{\frac{4}{3}}+c]$

8. $\int \dfrac{x+1}{x^3}\,dx$ $\qquad\qquad\qquad$ $[-\dfrac{1}{x}-\dfrac{1}{2x^2}+c]$

9. $\int \dfrac{x^2+x+3}{x^2}\,dx$ $\qquad\qquad\qquad$ $[x+\ln|x|-\dfrac{3}{x}+c]$

10. $\int e^{-3x}\,dx$ $\qquad\qquad\qquad$ $[-\dfrac{1}{3}e^{-3x}+c]$

11. $\int \cos 3x\,dx$ $\qquad\qquad\qquad$ $[\dfrac{1}{3}\sin 3x+c]$

12. $\int e^{-x}\,dx$ $\qquad\qquad\qquad$ $[-e^{-x}+c]$

13. $\int \sin 5x\,dx$ $\qquad\qquad\qquad$ $[-\dfrac{1}{5}\cos 5x+c]$

14. $\int e^{4x}\,dx$ $\qquad\qquad\qquad$ $[\dfrac{1}{4}e^{4x}+c]$

15. $\int \cos\dfrac{x}{2}\,dx$ $\qquad\qquad\qquad$ $[2\sin\dfrac{x}{2}+c]$

16. $\int \sin\dfrac{x}{3}\,dx$ $\qquad\qquad\qquad$ $[-3\cos\dfrac{x}{3}+c]$

17. $\int (3x-5)^5\,dx$ $\qquad\qquad\qquad$ $[\dfrac{(3x-5)^6}{18}+c]$

18. $\int \dfrac{1}{2x-3}\,dx$ $\qquad\qquad\qquad$ $[\dfrac{1}{2}\ln|3x-3|+c]$

19. $\int \dfrac{1}{(2x+5)^3}\,dx$ $\qquad\qquad\qquad$ $[-\dfrac{1}{4(2x+5)^2}+c]$

20. $\int \dfrac{x}{x^2+2}\,dx$ $\qquad\qquad\qquad$ $[\dfrac{1}{2}\ln(x^2+2)+c]$

21. $\int \cotg x\,dx$ $\qquad\qquad\qquad$ $[\ln(\sin x)+c]$

22. $\int \dfrac{3x}{x^2+5}\,dx$ $\qquad\qquad\qquad$ $[\dfrac{3}{2}\ln(x^2+5)+c]$

23. $\int \dfrac{1}{4\sqrt[8]{x^7}}\,dx$ $\qquad\qquad\qquad$ $[2\sqrt[8]{x}+c]$

24. $\int (2\sqrt{x}-3\sqrt[4]{x})\,dx$ $\qquad\qquad\qquad$ $[\dfrac{4}{3}\sqrt{x^3}-\dfrac{12}{5}\sqrt[4]{x^5}+c]$

25. $\int \left(\sqrt[3]{x}-\dfrac{1}{\sqrt[3]{x}}\right)\,dx$ $\qquad\qquad\qquad$ $[\dfrac{3}{4}\sqrt[3]{x^4}-\dfrac{3}{2}\sqrt[3]{x^2}+c]$

26. $\int (x^2 + 5)(x - 3)\, \mathrm{d}x$

$\quad [\dfrac{x^4}{4} - x^3 + \dfrac{5x^2}{2} - 15x + c]$

27. $\int x^4(x^3 + 3x^2 + 7)\, \mathrm{d}x$

$\quad [\dfrac{x^8}{8} + \dfrac{3x^7}{7} + \dfrac{7x^5}{5} + c]$

28. $\int \sqrt{x}(x + 3)\, \mathrm{d}x$

$\quad [\dfrac{2\sqrt{x^5}}{5} + 2\sqrt{x^3} + c]$

29. $\int x^3(\sqrt{x} + 1)\, \mathrm{d}x$

$\quad [\dfrac{2\sqrt{x^9}}{9} - \dfrac{x^4}{4} + c]$

30. $\int \left(\dfrac{1}{2x^3} - \dfrac{1}{x^4} \right)\, \mathrm{d}x$

$\quad [-\dfrac{1}{4x^2} + \dfrac{1}{3x^3} + c]$

31. $\int \left(\dfrac{1}{\sqrt[3]{x}} + 1 \right)^2 \mathrm{d}x$

$\quad [3\sqrt[3]{x} + 3\sqrt[3]{x^2} + x + c]$

32. $\int \dfrac{3}{(3x - 1)^3}\, \mathrm{d}x$

$\quad [-\dfrac{1}{2(3x - 1)^2} + c]$

33. $\int (7x - 6)^4\, \mathrm{d}x$

$\quad [\dfrac{(7x - 6)^5}{35} + c]$

34. $\int \dfrac{1}{\sqrt{x - 2}}\, \mathrm{d}x$

$\quad [2\sqrt{x - 2} + c]$

35. $\int e^{5 - 2x}\, \mathrm{d}x$

$\quad [-\dfrac{1}{2}e^{5 - 2x} + c]$

36. $\int (3 - 2x)^{10}\, \mathrm{d}x$

$\quad [-\dfrac{1}{22}(3 - 2x)^{11} + c]$

37. $\int \dfrac{7}{5 - 3x}\, \mathrm{d}x$

$\quad [-\dfrac{7}{3}\ln|5 - 3x| + c]$

38. $\int \sqrt{4x - 3}\, \mathrm{d}x$

$\quad [\dfrac{1}{6}\sqrt{(4x - 3)^3} + c]$

39. $\int \sin(2x + \pi)\, \mathrm{d}x$

$\quad [-\dfrac{1}{2}\cos(2x + \pi) + c]$

40. $\int 2^{5x}\, \mathrm{d}x$

$\quad [\dfrac{2^{5x}}{5\ln 2} + c]$

41. $\int \dfrac{1}{\cos^2 4x}\, \mathrm{d}x$

$\quad [\dfrac{1}{4\mathrm{tg}4x} + c]$

42. $\int \dfrac{x^3 + x - 1}{x^2}\, \mathrm{d}x$

$\quad [\dfrac{x^2}{2} + \ln|x| + \dfrac{1}{x} + c]$

43. $\int \dfrac{2x^4 + 3x^3 - x^2}{x^3}\, \mathrm{d}x$

$\quad [x^2 + 3x - \ln|x| + c]$

44. $\int \dfrac{8x^3 - 6x^2 - ex^4}{3x^3}\, \mathrm{d}x$

$\quad [\dfrac{8x}{3} - 2\ln|x| - \dfrac{ex^2}{6} + c]$

45. $\int \dfrac{2x^4 - 8x^3 - 6x^2 + 4}{x^3}\, \mathrm{d}x$

$\quad [x^2 - 8x - 6\ln|x| - \dfrac{2}{x^2} + c]$

46. $\int \mathrm{tg}\, x\, \mathrm{d}x$

$\quad [-\ln|\cos x| + c]$

47. $\int \dfrac{3x}{x^2 - 2}\, \mathrm{d}x$

$\quad [\dfrac{3}{2}\ln|x^2 - 2| + c]$

48. $\int \dfrac{5x}{2x^2 - 1}\, \mathrm{d}x$

$\quad [\dfrac{5}{4}\ln|2x^2 - 1| + c]$