

## Section 5-2 : Computing Indefinite Integrals

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For problems 1 – 43 evaluate the given integral.

1.  $\int 7x^5 - 5x^4 + 6x^2 - 14x + 3 dx$

2.  $\int t^4 - 9t^3 + 12t^2 - 7t dt$

3.  $\int 4 - 18w^{11} - 9w^9 + 8w^7 + 2w^5 dw$

4.  $\int x^9 - 6x^4 - 21x^2 - 1 + 9x dx$

5.  $\int -7 dz$

6.  $\int 4 dw$

7.  $\int 10z^{-6} + 8z^{-5} - z^{-2} + 1 dz$

8.  $\int y^{-16} + 24y^{-12} - 14y^{-8} - 2y^{-4} dy$

9.  $\int 2x^{-9} + 12x^{-5} + 7x^{-3} - x^{-2} dx$

10.  $\int 5z^{-4} + 5z^4 - 9 dz$

11.  $\int 6t^3 + 8t^{-6} + t^{-10} dt$

12.  $\int x^{-3} + 9x^2 + 11x^8 - 7x^{-12} dx$

13.  $\int \sqrt[7]{w^2} + 3 - 9\sqrt[3]{w^7} dw$

14.  $\int w^5 + \sqrt{w^5} - \sqrt[5]{w} dw$

15.  $\int 6\sqrt[3]{v^2} - 7\sqrt[4]{v} dv$

16.  $\int \frac{6}{y^3} - \frac{1}{7y^6} + \frac{1}{y^2} dy$

$$17. \int 8 + u^5 - \frac{1}{u^5} + \frac{1}{6u^5} du$$

$$18. \int \frac{12}{x^5} + \frac{1}{4x^8} + \frac{6}{7x^2} dx$$

$$19. \int \sqrt[3]{t^5} - \frac{1}{\sqrt{t^9}} + t^4 dt$$

$$20. \int \frac{2}{z^6} - \frac{1}{5\sqrt[7]{z^8}} + 9 dz$$

$$21. \int x^3 + \frac{1}{x^3} - \sqrt{x^3} dx$$

$$22. \int x^6(1 - 4x^2 + x^3) dx$$

$$23. \int (6 - 2u)^2 du$$

$$24. \int 2 - (3 + y)(4 - y^3) dy$$

$$25. \int \sqrt{w}(\sqrt[3]{w} - \sqrt[4]{w}) dw$$

$$26. \int 3v \left( v^2 - \frac{1}{6v^2} + \sqrt[3]{v^2} \right) dv$$

$$27. \int \frac{8x^5 - 2x^3 + 7}{x^2} dx$$

$$28. \int \frac{9 - z + 2z^4 + 10z^6}{z^4} dz$$

$$29. \int \frac{2\sqrt{t} - 4t + \sqrt[3]{t}}{t^2} dt$$

$$30. \int \frac{(1-x)(2+x)}{x} dx$$

$$31. \int 6 \sin(t) - 2 \cos(t) dt$$

$$32. \int \sec^2(u) + 7 \sec(u) \tan(u) du$$

$$33. \int \csc^2(y) - \sec^2(y) dy$$

$$34. \int 8 \cos(z) - 3 \csc(z) \cot(z) dz$$

$$35. \int \tan(x) [\cot(x) - \cos(x)] dx$$

$$36. \int \frac{\cos^3(v) + \sin(v)}{\cos^2(v)} dv$$

$$37. \int w^2 + 2e^w dw$$

$$38. \int e^t + \frac{2}{t} dt$$

$$39. \int \frac{14}{x} - \frac{3}{x^2} dx$$

$$40. \int e^{-u} (e^{2u} + e^u) du$$

$$41. \int \frac{1}{7z} + \frac{1}{e^{-z}} + \frac{1}{4z^8} dz$$

$$42. \int 1 + w^2 - \frac{6}{1+w^2} dw$$

$$43. \int \frac{5}{1+t^2} + \frac{1}{10\sqrt{1-t^2}} dt$$

44. Determine  $f(x)$  given that  $f'(x) = 12x^5 + 30x^2$  and  $f(4) = -23$ .

45. Determine  $h(z)$  given that  $h'(z) = 12z^3 - 14z^2 + 10$  and  $h(-1) = 8$ .

46. Determine  $g(v)$  given that  $g'(v) = \frac{1}{2}v^{-\frac{1}{2}} - \frac{1}{4}v^{-\frac{3}{4}}$  and  $g(16) = 1$ .

47. Determine  $P(t)$  given that  $P'(t) = 6e^t - 4 - 10t$  and  $P(0) = -6$ .

48. Determine  $g(x)$  given that  $g''(x) = 12x^2 - 30x + 4$ ,  $g(-1) = 7$  and  $g(2) = 3$ .

49. Determine  $f(u)$  given that  $f''(u) = 60u^4 - 60u^2$ ,  $f(-1) = 14$  and  $f'(1) = 6$ .

50. Determine  $h(t)$  given that  $h''(t) = 6t - 14 + 9e^t$ ,  $h(0) = 4$  and  $h(3) = 9e^3 + 8$ .

