

## Section 5-1 : Indefinite Integrals

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1. Evaluate each of the following indefinite integrals.

(a)  $\int 10x^9 - 12x^3 - 5 dx$

(b)  $\int 10x^9 - 12x^3 dx - 5$

2. Evaluate each of the following indefinite integrals.

(a)  $\int t^7 + 33t^2 + 8t dt$

(b)  $\int t^7 dt + 33t^2 + 8t$

3. Evaluate each of the following indefinite integrals.

(a)  $\int 6x^5 - 7x^3 + 12x^2 - 10 dx$

(b)  $\int 6x^5 - 7x^3 dx + 12x^2 - 10$

(c)  $\int 6x^5 dx - 7x^3 + 12x^2 - 10$

4. Evaluate each of the following indefinite integrals.

(a)  $\int 21x^6 - 9x^5 - x^3 - x dx$

(b)  $\int 21x^6 - 9x^5 - x^3 dx - x$

(c)  $\int 21x^6 - 9x^5 dx - x^3 - x$

For problems 5 – 9 evaluate the indefinite integral.

5.  $\int 8t^5 - 15t^2 - 1 dt$

6.  $\int 120y^9 - 24y^5 - 4y^3 dy$

7.  $\int dw$

8.  $\int x^9 + 14x^6 - 10x^3 + 13x dx$

9.  $\int 8x^6 - x^4 - 7x^2 + 11x - 12 dx$

10. Determine  $f(x)$  given that  $f'(x) = 16x^4 - 9x^2 - x$ .

11. Determine  $g(t)$  given that  $g'(t) = 4t^5 + 16t^2 - 18t + 72$ .

12. Determine  $R(z)$  given that  $R'(z) = 4z^{15} + 121z^{10} + 20z^5 + z - 4$ .

13. Determine  $f(x)$  given that  $f''(x) = 8x^3 - 12x + 3$ .

