

Indefinite Integrals

1. Compute each of the following integrals.

(a) $\int 3x^{-4} - 24x^7 + 7x - 8 \, dx$

(b) $\int 3x^{-4} - 24x^7 \, dx + 7x - 8$

Computing Indefinite Integrals

Compute each of the following integrals.

2. $\int 12w^6 - 3w^{-4} + \sqrt[5]{w^9} - 10 \, dw$

3. $\int \frac{5}{\sqrt[4]{z^3}} + \frac{1}{2z^{10}} - \frac{1}{9z} \, dz$

4. $\int 4e^x - 9 \sin(x) + 3 \sec(x) \tan(x) \, dx$

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

6. $\int \frac{\cos(y) \sin(y) + 7 \csc(y)}{\sin(y)} \, dy$

7. Determine $f(x)$ if $f''(x) = 12x^2 - 16x^{-3} + 18$, $f(-2) = 77$ and $f(1) = 8$.**Substitution Rule for Indefinite Integrals, Part I**

Compute each of the following integrals. Clearly show the substitution used for each integral and how it was used. In other words, don't just write an answer down for any of these.

8. $\int (\sin(t) - 2t) \sqrt{t^2 + \cos(t)} \, dt$

9. $\int (2 - 3e^{-6w}) \sec^2(4t + e^{-6w}) \, dw$

10. $\int \frac{2x - 4}{x^2 - 4x + 1} + \frac{20 - 10x}{(x^2 - 4x + 1)^3} \, dx$

11. $\int \frac{6}{z[\ln(z)]^3} \, dz$

12. $\int \sqrt[5]{y^3} + \sec(1 - y) \tan(1 - y) \, dy$