

Keeper 6.1 Virtual Problems – Indefinite Integration

Find the indefinite integrals below:

1. $\int \sqrt[3]{x} + 3 \, dx$

2. $\int 2x - 3x^2 \, dx$

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

4. $\int x^{\frac{3}{2}} + 2x + 1 \, dx$

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

6. $\int \frac{3x^2 - 2x + 3}{x^3} \, dx$

7. $\int y^3 \sqrt{y} \, dy$

8. $\int \frac{1}{w\sqrt{w}} \, dw$

9. $\int \frac{x^3+3}{\sqrt{x}} dx$

10. $\int (x+3)(x-3)^2 dx$

11. $\int \theta^2 + \cos \theta d\theta$

12. $\int \sqrt{x} - \sin x + 2 dx$

Find the indicated function based on the given information:

13. If $f'(x) = 2x - \sin x$ and $f(0) = 4$,
find $f(x)$

14. If $f''(x) = x^2$, $f'(0) = 6$, and $f(0) = 3$,
find $f(x)$