

Evaluate the indefinite integral. Check your result by differentiation.

1) $\int 3x^4 dx$

2) $\int \frac{1}{x^3} dx$

3) $\int 5u^{3/2} du$

4) $\int \frac{2}{3\sqrt{x}} dx$

5) $\int 6t^2 \sqrt[3]{t} dt$

$$6) \int y^3(2y^2 - 3)dy$$

$$7) \int (8x^4 + 4x^3 - 6x^2 - 4x + 5)dx$$

$$8) \int \sqrt{x}(x + 1)dx$$

$$9) \int \left(\frac{2}{x^3} + \frac{3}{x^2} + 5 \right) dx$$

$$10) \int \frac{x^2 + 4x - 4}{\sqrt{x}} dx$$

$$11) \int \left(\sqrt[3]{x} + \frac{1}{\sqrt[3]{x}} \right) dx$$

$$12) \int (3 \sin t - 2 \cos t) dt$$

$$13) \int \frac{\sin x}{\cos^2 x} dx$$

$$14) \int (4 \csc x \cot x + 2 \sec^2 x) dx$$

$$15) \int (2 \cot^2 \theta - 3 \tan^2 \theta) d\theta$$

Answer Key

1) $\frac{3}{5}x^5 + c$

2) $-\frac{1}{2x^2} + c$

3) $2u^{5/2} + c$

4) $3x^{2/3} + c$

5) $\frac{9}{5}t^{10/3} + c$

6) $\frac{1}{3}y^6 - \frac{3}{4}y^4 + c$

7) $\frac{8}{5}x^5 + x^4 - 2x^2 + 5x + c$

8) $\frac{2}{5}x^{5/2} + \frac{2}{3}x^{3/2} + c$

9) $\frac{-1}{x^2} - \frac{3}{x} + 5x + c$

10) $\frac{2}{5}x^{5/2} + \frac{8}{3}x^{3/2} - 8x^{1/2} + c$

11) $\frac{3}{4}x^{4/3} + \frac{3}{2}x^{2/3} + c$

12) $-3 \cos t - 2 \sin t + c$

13) $\sec x + c$

14) $-4 \csc x + 2 \tan x + c$

15) $-2 \cot \theta - 3 \tan \theta + \theta + c$