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<https://physicsaholics.com/home/courseDetails/36>

Video Solution on YouTube:-

<https://youtu.be/7smFzaTlc9E>

Written Solution on Website:-

<https://physicsaholics.com/note/notesDetailis/70>

Q 1. Find  $\int x dx = ?$

- (a)  $\frac{x^2}{2} + C$                       (b)  $x^2 + C$                       (c)  $x^2 + x + C$                       (d)  $C$

Q 2. Find  $\int \frac{1}{x} dx = ?$

- (a)  $\frac{x^2}{2} + C$                       (b)  $\frac{1}{x^2} + C$   
(c)  $\ln x + C$                       (d) None of these

Q 3. Find  $\int (4x^2 + 1) dx = ?$

- (a)  $x^4 + x + C$                       (b)  $\frac{4x^3}{3} + x + C$   
(c)  $8x + C$                       (d) None of these

Q 4. Find  $\int 3e^{3x} dx = ?$

- (a)  $3e^{3x} + C$                       (b)  $e^{3x} + C$   
(c)  $\frac{3e^{4x}}{4} + C$                       (d) None of these

Q 5. Find  $\int \left( e^x + \frac{2}{x} \right) dx = ?$

- (a)  $e^{2x} + \ln 2x + C$                       (b)  $\frac{e^{2x}}{2} + 2 \ln 2x + C$   
(c)  $e^x + 2 \ln x + C$                       (d) None of these

Q 6. If  $y = (3x + 1)^3$ , then find  $I = \int y dx$  ?

- (a)  $I = \frac{(3x+1)^4}{4} + C$                       (b)  $\frac{(3x+1)^4}{12} + C$   
(c)  $I = \frac{(3x+1)^4}{3} + C$                       (d) None of these

Q 7. If  $y = \sin x + \cos x$ , then find  $I = \int y dx$  ?

- (a)  $I = -\cos x - \sin x + c$                       (b)  $I = \cos x - \sin x + c$   
(c)  $I = -\cos x + \sin x + c$                       (d) None of these



Q 8. Find  $I = \int \frac{1}{x^3} dx$  ?

(a)  $I = -\frac{1}{2x^2} + c$

(c)  $I = \frac{1}{x^2} + c$

(b)  $I = \frac{1}{2x^2} + c$

(d) None of these

Q 9. Find  $I = \int (e^x + \cos x) dx$  ?

(a)  $I = e^x - \sin x + c$

(c)  $I = e^x - \cos x + c$

(b)  $I = e^x + \sin x + c$

(d) None of these

Q 10. Find  $I = \int (4x^3 + 3x^2 + 2x + 1) dx$  ?

(a)  $I = 12x^4 + 6x^3 + 2x^2 + x + c$

(b)  $I = \frac{4}{3}x^4 + \frac{3}{2}x^3 + 2x^2 + x + c$

(c)  $I = x^4 + x^3 + x^2 + x + c$

(d) None of these

Q 11. Find  $I = \int (6\sqrt[5]{x} + 5\sqrt[3]{x^2}) dx$  ?

(a)  $I = 5x^{\frac{6}{5}} + 3x^{\frac{5}{3}} + c$

(b)  $I = x^{\frac{6}{5}} + x^{\frac{5}{2}} + c$

(c)  $I = 6x^{\frac{6}{5}} + 5x^{\frac{5}{2}} + c$

(d) None of these

Q 12. Find  $I = \int (3x^2 + e^x + \sin x + 2) dx$  ?

(a)  $I = 3x^3 + e^x + \cos x + 2x + c$

(b)  $I = x^3 + e^x - \cos x + 2x + c$

(c)  $I = x^3 + e^x + \cos x + 2x + c$

(d) None of these



## Answer Key











<b>Q.1 a</b>	<b>Q.2 c</b>	<b>Q.3 b</b>	<b>Q.4 b</b>	<b>Q.5 c</b>
<b>Q.6 b</b>	<b>Q.7 c</b>	<b>Q.8 a</b>	<b>Q.9 b</b>	<b>Q.10 c</b>
<b>Q.11 a</b>	<b>Q.12 b</b>			

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Awesome! **PHYSICSLIVE** code applied



# **Written Solution**

**DPP-7 Basic Maths: Indefinite  
Integration**

**By Physicsaholics Team**

Solution: 1

$$I = \int x \, dx$$

$$I = \frac{x^{1+1}}{1+1} + C$$

$$I = \frac{x^2}{2} + C$$

Ans. a

Solution: 2

$$I = \int \frac{1}{x} dx$$

$$\therefore \frac{d}{dx} (\ln x) = \frac{1}{x}$$

$$\therefore \int \frac{1}{x} dx = \ln(x) + c$$

Ans. c

Solution: 3

$$I = \int (4x^2 + 1) dx$$

$$I = \int 4x^2 dx + \int dx$$

$$I = 4 \int x^2 dx + \int dx$$

$$I = \frac{4}{3} x^3 + x + C$$

Ans. b



Solution: 4

$$I = \int 3 e^{3x} dx$$

$$\therefore \int e^{ax} = \frac{1}{a} e^{ax} + C$$

$$\therefore I = \int 3 e^{3x} dx$$

$$I = \frac{3 e^{3x}}{3} + C$$

$$I = e^{3x} + C$$

Ans. b

Solution: 5

$$I = \int \left( e^x + \frac{2}{x} \right) dx$$

$$I = \int e^x dx + 2 \int \frac{1}{x} dx$$

$$I = e^x + 2 \ln(x) + c$$

Ans. c

Solution: 6

$$I = \int (3x+1)^3$$

$$\therefore I = \int (ax+b)^n = \frac{(ax+b)^{n+1}}{a(n+1)} + c$$

$$\therefore I = \frac{(3x+1)^{3+1}}{3(3+1)} + c$$

$$I = \frac{(3x+1)^4}{12} + c$$

Ans. b

Solution: 7

$$y = \sin x + \cos x$$

$$I = \int y \, dx$$

$$I = \int (\sin x + \cos x) \, dx$$

$$I = \int \sin x \, dx + \int \cos x \, dx$$

$$I = -\cos x + \sin x + C$$

Ans. c

Solution: 8

$$I = \int \frac{1}{x^3} dx$$

$$I = \int x^{-3} dx$$

$$I = \frac{x^{-3+1}}{-3+1} + C$$

$$I = \frac{x^{-2}}{-2} + C$$

$$I = -\frac{x^{-2}}{2} + C$$

$$I = -\frac{1}{2x^2} + C$$

Ans. a

Solution: 9

$$I = \int (e^x + \cos x) dx$$

$$I = \int e^x dx + \int \cos x dx$$

$$I = e^x + \sin x + C$$

Ans. b

Solution: 10

$$I = \int (4x^3 + 3x^2 + 2x + 1) dx$$

$$I = \frac{4x^4}{4} + \frac{3x^3}{3} + \frac{2x^2}{2} + x + C$$

$$I = x^4 + x^3 + x^2 + x + C$$

Ans. c

Solution: 11

$$I = \int (6\sqrt{x} + 5\sqrt[3]{x^2}) dx$$

$$I = \int (6(x)^{\frac{1}{2}} + 5(x^2)^{\frac{1}{3}}) dx$$

$$I = \int (6(x)^{\frac{1}{2}} + 5(x)^{\frac{2}{3}}) dx$$

$$I = \int 6(x)^{\frac{1}{2}} dx + \int 5(x)^{\frac{2}{3}} dx$$

$$I = 6 \frac{x^{\frac{1}{2}+1}}{\frac{1}{2}+1} + 5 \frac{x^{\frac{2}{3}+1}}{\frac{2}{3}+1} + C$$

$$I = 6 \left(\frac{5}{6}\right) (x^{\frac{3}{2}}) + 5 \left(\frac{3}{5}\right) (x^{\frac{5}{3}}) + C$$

$$I = 5(x)^{\frac{6}{2}} + 3(x)^{\frac{5}{3}} + C$$

$$I = 5(x)^{\frac{6}{2}} + 3(x)^{\frac{5}{3}} + C$$

Ans. a



Solution: 12

$$I = \int (3x^2 + e^x + \sin x + 2) dx$$

$$I = 3 \int x^2 dx + \int e^x dx + \int \sin x dx + \int 2 dx$$

$$I = 3 \left[ \frac{x^3}{3} \right] + e^x + (-\cos x) + 2x + C$$

$$I = x^3 + e^x - \cos x + 2x + C$$

Ans. b

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