

INTEGRALS**METHODS OF INTEGRATION****EXERCISE**

Q.1 Integrate $2\sin^2 x + \cos^2 x$

(a) $\frac{3x}{2} + \frac{\sin 2x}{4} + C$

(b) $\frac{3x}{2} - \frac{\sin 2x}{4} + C$

(c) $\frac{x}{2} + \frac{\sin 2x}{4} + C$

(d) $\frac{3x}{4} - \frac{2\sin 2x}{2} + C$

Q.2 Integrate $8\tan^3 x \sec^2 x$

(a) $2\tan^4 x + C$

(b) $4\cot^4 x + C$

(c) $2\tan^3 x + C$

(d) $\tan^4 x + C$

Q.3 Find the integral of $\frac{\cos^2 x - \sin^2 x}{7\cos^2 x \sin^2 x}$.

(a) $-\frac{1}{7}(\cot x - \tan x) + C$

(b) $-\frac{1}{7}(\cot x - 2\tan x) + C$

(c) $-\frac{1}{7}(\cot x + \tan x) + C$

(d) $-\frac{1}{7}(2\cot x + 3\tan x) + C$

Q.4 Find $\int \sin^2(8x+5)dx$

(a) $\frac{x}{4} + \frac{\sin(16x+10)}{32} + C$

(b) $\frac{x}{2} - \frac{\cos(16x+10)}{32} + C$

(c) $\frac{x}{2} - \frac{\sin(16x+10)}{32} + C$

(d) $\frac{x}{2} + \frac{\cos(16x+5)}{32} + C$

Q.5 Find $\int \frac{5\cos^2 x}{1+\sin x} dx$.

(a) $-3(x+\cos x)+C$

(b) $5(x+\cos x)+C$

(c) $5(-x+\sin x)+C$

(d) $5(x-\cos x)+C$

Q.6 Find the integral of $\frac{e^{-x}(1-x)}{\sin^2(xe^{-x})}$.

(a) $\cot xe^{-x} + C$

(b) $-\cot xe^{-x} + C$

(c) $-\cot xe^x + C$

(d) $-\cos^2 xe^{-x} + C$

Q.7 Integrate $\frac{2\cos 2x}{(\cos x - \sin x)^2}$.

(a) $-\log(1+2\sin 2x)+C$

(b) $\frac{1}{4}\log(1-\sin 2x)+C$

(c) $-\frac{1}{4}\log(1+\cos 2x)+C$

(d) $-\log(1-\sin 2x)+C$

Q.8 Integrate $\sin^3(x+2)$

(a) $\frac{3}{4}(\sin(x+2)) + \frac{1}{12}\cos(3x+6)+C$

(b) $-\frac{3}{4}(\cos(x+2)) - \frac{1}{5}\cos(3x+6)+C$

(c) $-\frac{3}{4}(\cos(x+2)) + \frac{1}{12}\cos(3x+6)+C$

(d) $-\frac{3}{4}(\cos(x+2)) + \frac{1}{12}\sin(x+2)+C$

Q.9 Integrate $2x \cos(x^2 + 3)$.

(a) $\sin(x^2 + 3) + C$

(b) $\sin^2(x^2 + 3) + C$

(c) $\cot(x^2 + 3) + C$

(d) $-\sin(x^2 + 3) + C$

Q.10 Find $\int 2 \sin^3 x + 1 dx$

(a) $\frac{3}{2} - \frac{\cos 3x}{6} + x + C$

(b) $-\frac{3}{2} \cos x + \frac{\cos 3x}{6} + x + C$

(c) $-\frac{3}{2} \cos x - \frac{\cos 3x}{6} - x + C$

(d) $-\frac{3}{2} \cos x + \frac{\cos 3x}{6} + C$

ANSWER KEY

1. (b)

2. (a)

3. (c)

4. (c)

5. (b)

6. (b)

7. (d)

8. (c)

9. (a)

10. (b)