

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

(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 Solve 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 $2\sin^3 x + 1dx$.

(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)