ISC COACHING CENTRE

EXPERT TUITION FROM
EXPERIENCED TEACHERS

Class IV-X

English , Maths,
Science & Social Science

Class XI-XII

English , Maths, Accountancy, Economics,
I.p, C.S, Business Studies, History,
Pol. Science,History, Geography

- Class Notes
- Important Questions
- Test papers
- Pre-Board Paper
- Assignmenta
- Sample papers
- Board Papers
- Mcq Questions
- Short Notes

Branch 1:-
C-20,Bunglow Road,
Adarsh Nagar

Branch 2:-
ISC, Near Labour
Chowk, Adarsh Nagar

(87005 80592

CLASSTIME Pg. No.
Date / /

ISC Coaching Centre
Class XII Differentiation
By Rajat Sir

Level 1

Q1 (i) $8x^3$ ii) $6\sqrt{x}$ iii) $5e^x$ iv) 2^x

v) $x^3+e^x+3^x+\cot x$ vi) $9x^2+\frac{3}{x}+5\sin x$

vii) $x^2+\frac{4}{x^2}-\frac{2}{3}\tan x+6e$ viii $(x^2-5x+6)(x-3)$

ix) $\left(\sqrt{x}+\frac{1}{\sqrt{x}}\right)^2$ x) $\frac{3}{\sqrt[3]{x}}-\frac{5}{\cos x}+\frac{6}{\sin x}-\frac{2\tan x}{\sec x}$

Q2 i) $\frac{3x^2+2x+5}{\sqrt{x}}$ ii) $y=\sqrt{\frac{1-\cos 2x}{1+\cos 2x}}$

iii) $5x^{-3/2}+\frac{4}{\sqrt{x}}+\sqrt{x}-\frac{7}{x}$

iv $\left(x^2+\frac{1}{x^2}\right)^3$ v) $\frac{(x^2+1)(x-2)}{x^2}$

vi) $\frac{(1+x)\sqrt{x}}{\sqrt[3]{x}}$

vii) $y=\frac{1-\tan^2 x/2}{1+\tan^2 x/2}$ viii) $y=\sqrt{\frac{x}{a}}+\sqrt{\frac{a}{x}}$

ix) $y=\frac{2-3\cos x}{\sin x}$, Find $\frac{dy}{dx}$ at $x=\frac{\pi}{4}$

X) $y=(\sin x+\tan x)$ Find $\frac{dy}{dx}$ at $x=\frac{\pi}{4}$

Level 2

(i) $x e^x$

(ii) $x^2 e^x \sin x$

iii) $e^x(x^3+\sqrt{x})$

iv) $\frac{e^x \cos x}{x^3}$

v $(x^3 \cos x - 2^x \tan x)$

vi $\frac{x^2 \sin x}{1-x}$

vii) $\frac{\sec x - 1}{\sec x + 1}$

viii) $\frac{x \tan x}{\sec x + \tan x}$

ix $\frac{\sin x - x\cos x}{x \sin x + \cos x}$

x $\frac{\sqrt{a}+\sqrt{x}}{\sqrt{a}-\sqrt{x}}$

xi $\frac{2^x}{x}$

xii $\frac{\log x}{x}$

chain rule.

i) $\sin^3 x$

ii) $\sin x^3$

iii) $e^{\sin x}$

iv) $\frac{1}{\sqrt{a^2-x^2}}$

v) $(ax+b)^m$

vi) $(3x+5)^6$

vii) $\sqrt{ax^2+2bx+c}$

viii) $e^{\sqrt{\cot x}}$

ix) $y = \cos^2 x^2$

x) $\sqrt{\frac{1-\tan x}{1+\tan x}}$

xi) $\sin\sqrt{\sin x + \cos x}$

xii) $\sin 2x \cos 3x$

xiii) $\sqrt{\frac{1+x}{1-x}}$

xiv) $\frac{x}{\sqrt{1-x^2}}$

Q1 $\sin 4x$

Q2 $\cos 5x$

Q3 $\tan 3x$

Q4 $\cos x^3$

Q5 $\cot^2 x$

Q6 $\tan^3 x$

Q7 $\tan \sqrt{x}$

Q8 e^{x^4}

Q9 $e^{\cot x}$

Q10 $\sqrt{\sin x}$

Q11 $(5+7x)^6$

Q12 $(3-4x)^5$

Q13 $(3x^2-x+1)^4$

Q14 $(ax^2+bx+c)^n$

Q15 $\dfrac{1}{(x^2-x+3)^3}$

Q16 $\sin^2(2x+3)$

Q17 $\cos^2 x^3$

Q18 $\sqrt{\sin x^3}$

Q19 $\sqrt{x \sin x}$

Q20 $\sqrt{\cot \sqrt{x}}$

Q21 $\cos(\sin \sqrt{ax+b})$

Q22 $\cos(x^3 e^x)$

Q23 $e^{-5x} \cot 4x$

Q24 $\sqrt{\dfrac{a^2-x^2}{a^2+x^2}}$

Q25 $\dfrac{e^{2x}+x^3}{\operatorname{cosec} 2x}$

Q26 $y = \sin\left(\dfrac{1+x^2}{1-x^2}\right)$

Q27 $y = e^x \log(\sin 2x)$