

APOLLO

Differentiation Rules

FBISE Mathematics Class 12 (HSSC-II)

Domain A: Numbers and Algebra

8 questions | questions

Original FBISE question crops. National Curriculum 2022-23 topic.

Q1. Fill the relevant bubble against each question. Each part carries ONE mark.

Sr No.	Question	A	B	C	D
i.	The inverse of $f(x) = \frac{x-1}{2}$ is:	$2x-1$	$2x+1$	$x-2$	$x+2$
ii.	For what value of x , $f(x) = \frac{x-2}{x^2-4}$ is discontinuous?	-2	-1	1	0
iii.	What is the derivative of $\left(\frac{\sin \alpha}{\sec x}\right)$ w. r. t. x ?	$\sin \alpha \sin x$	$-\cos \alpha \cos x$	$-\sin \alpha \sin x$	$-\cos x \sin \alpha$

First Annual 2025 | Section B Q2(xii) OR | 4 marks

OR	Find $\frac{dy}{dx}$, if $x^3 + 3x^2y^2 + y^3 = 0$	04
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First Annual 2025 | Section B Q2(xii) OR | 4 marks

Find $\frac{dy}{dx}$, when $3x^3 - 6x^2y^2 - 5y^3 = 0$

Second Annual 2025 | Section B Q2(vi) OR | 4 marks

OR	Use Euler's theorem to verify that, $f(x, y) = 3x^2y + 2xy^2$ is a homogeneous function of degree 3.	04
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Second Annual 2025 | Section B Q2(x) | 4 marks

(x)	Find the first-order partial derivatives $\frac{\partial z}{\partial x}$ and $\frac{\partial z}{\partial y}$ of the function $z = e^{xy} + x^{3y}$	04
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First Annual 2026 | Section B Q2(xi) OR | 4 marks

Find the derivative of $f(x) = \frac{x^2+1}{x^2-1}$ and simplify.	04
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First Annual 2026 | Section B Q2(xi) OR | 4 marks

Differentiate the function w.r.t. x . $y = \frac{2x^3 - 3x + 1}{x^2 + 1}$.	04
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Find y_2 if $x^2 + y^2 = a^2$

04