

Step Academy official

Model Town Grw PH: 03016652757

STUDENT NAME	
PAPER CODE	95753
TIME ALLOWED	60
Paper Date	13-02-2026



CLASS	New 1st Year (FSC/ICS)
SUBJECT	Mathematics
TOTAL MARKS	25
Paper Type	

Q1. Choose the correct answer.

5X1=5

1. $\frac{d}{dx}(ax+b)^n$ is equal to:

(A) $n(ax^{n-1}+b)$

(B) $n(ax+b)$

(C) nax^{n-1}

(D) $na(ax+b)^{n-1}$

2. $\frac{d}{dx}\left[\frac{1}{g(x)}\right] = \dots\dots$

(A) $\frac{1}{g^2(x)}$

(B) $\frac{-g(x)}{g(x)}$

(C) $\frac{1}{[g(x)]^2}$

(D) $\frac{-g'(x)}{[g(x)]^2}$

3. $\frac{d}{dx}f \circ g(x) = ?$

(A) $f'(g(x))$

(B) $f(g'(x))$

(C) $f[g(x)]g'(x)$

(D) $f'[g(x)]g'(x)$

4. $\frac{d}{dx}\left(\frac{2}{x}\right) = ?$

(A) $\frac{1}{x}$

(B) $\left(\frac{-2}{x}\right)$

(C) $\frac{2}{x^2}$

(D) $\frac{-2}{x^2}$

5. $f(x) = \frac{1}{x^m}$ then $f'(x) = ?$

(A) $-xm^{-1}$

(B) $-mx^{-m-1}$

(C) $-xm^{-m+1}$

(D) $-xm^{-1}x$

Q2. write the answers of following questions.

5X2=10

1. Find the derivative of $x^{\frac{2}{3}}$ at $x=8$ from the first principle.

2. Find the derivative of $\sqrt{x}$ at $x=a$ from first principle.

3. Differentiate w.r.t 'x': $\left(\sqrt{x} - \frac{1}{\sqrt{x}}\right)^2$

4. Differentiate w.r.t 'x': $(x-5)(3-x)$

5. Find by definition, the derivatives w.r.t 'x' of the following function defined as: $\frac{1}{\sqrt{x}}$

1. Calculate $\frac{d}{dx} \left(3x^{\frac{4}{3}} \right) = 3 \frac{d}{dx} \left(x^{\frac{4}{3}} \right)$.

2. Differentiate $\frac{2x^3 - 3x^2 + 5}{x^2 + 1}$ with respect to x.