

Derivative - Class XII

Past Year JEE Questions

Questions

Question: 01

Let f and g be differentiable functions on \mathbb{R} such that $f \circ g$ is the identity function. If for some a , $b \in \mathbb{R}$, $g'(a) = 5$ and $g(a) = b$, then $f'(b)$ is equal to :

- A. 1
- B. 5
- C. $\frac{2}{5}$
- D. $\frac{1}{5}$

Solutions

Solution: 01

Explanation

$f \circ g$ is an identity function

$$\therefore f(g(x)) = x$$

$$\Rightarrow f'(g(x)) g'(x) = 1$$

put $x = a$

$$\Rightarrow f'(b) g'(a) = 1$$

$$\Rightarrow f'(b) = \frac{1}{5}$$