Past Year JEE Questions

Questions

Quetion: 01

If $0 \leq x < \frac{\pi}{2}$, then the number of values of x for which sin x − sin 2x + sin 3x = 0, is :

A. 3
B. 1
C. 4
D. 2

Solutions

Solution: 01

Explanation

sin x − sin 2x + sin 3x = 0 $x \in \left[0, \frac{\pi}{2}\right)$

$\Rightarrow$ (sin3x + sinx) − sin2x = 0

$\Rightarrow$ 2sin2x.cos2x − sin2x = 0

$\Rightarrow$ sin2x (2cosx − 1) = 0

sin 2x = 0

x = 0

and cos x = $\frac{1}{2}$

and x = $\frac{\pi}{3}$

two solutions