

Que 6:

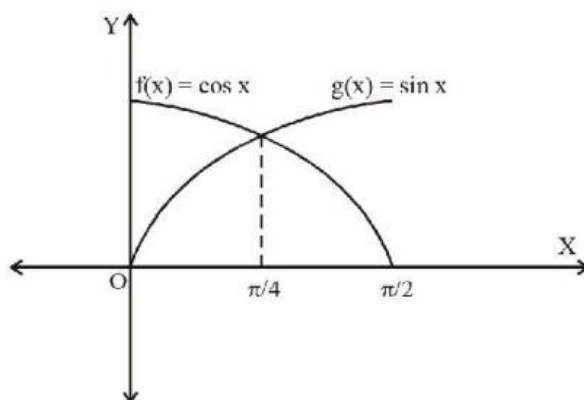
The area under the curve $y = |\cos x - \sin x|$, $0 \leq x \leq \frac{\pi}{2}$, and above x -axis is :

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- (a) $2\sqrt{2}$
- (b) $2\sqrt{2} - 2$
- (c) $2\sqrt{2} + 2$
- (d) 0

solution:

(b) $y = |\cos x - \sin x|$



$$\begin{aligned} \text{Required area} &= 2 \int_0^{\pi/4} (\cos x - \sin x) dx \\ &= 2 [\sin x + \cos x]_0^{\pi/4} \\ &= 2 \left[\frac{2}{\sqrt{2}} - 1 \right] = (2\sqrt{2} - 2) \text{ sq. units} \end{aligned}$$