

Considering only the principal values of inverse functions, the set $A = \{x \geq 0 : \tan^{-1}(2x) + \tan^{-1}(3x) = \pi/4\}$

- (1) Contains two elements
- (2) Contains more than two elements
- (3) is an empty set
- (4) is a singleton

The correct option (4) is a singleton

Explanation:

$$\tan^{-1}(2x) + \tan^{-1}(3x) = \frac{\pi}{4}$$

$$\Rightarrow \left(\frac{5x}{1-6x^2} \right) = 1$$

$$\Rightarrow 6x^2 + 5x - 1 = 0$$

Reject $x = -1$, $x = 1/6$

so $x = 1/6$ only solution