

2. for all 'x', $x^2 + 2ax + (10 - 3a) > 0$, then the interval in which 'a' lies

(a) $a < -5$

(b) $-5 < a < 2$

(c) $a > 5$

(d) $2 < a < 5$

Solⁿ

for, $ax^2 + bx + c > 0$ for $\forall x \in \mathbb{R}$
if and only if $a > 0$; $(\sqrt{b^2 - 4ac})^2 < 0$
; $D < 0$

$$\Rightarrow x^2 + 2ax + (10 - 3a) > 0 \quad \forall x \in \mathbb{R}$$

$$\Rightarrow D < 0$$

$$\Rightarrow 4a^2 - 4(10 - 3a) < 0$$

$$\Rightarrow 4(a^2 + 3a - 10) < 0$$

$$\Rightarrow (a + 5)(a - 2) < 0$$

$$\Rightarrow a \in (-5, 2)$$