

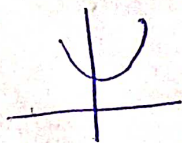
Q) If $mx^2 - 9mx + 5m + 1 > 0, \forall x \in \mathbb{R}$, then

'm' lies in the interval

- (A) $(-\frac{4}{61}, 0)$, (B) $(0, \frac{4}{61})$ (C) $(\frac{4}{61}, \frac{61}{4})$ (D) $(-\frac{61}{4}, 0)$

Sol Given eqn. $mx^2 - 9mx + (5m+1) > 0$

\rightarrow eqn is > 0 , so, no real solution exist.



There for discriminant $(D) < 0$

$$\Rightarrow D = b^2 - 4ac < 0$$

$$\Rightarrow (9m)^2 - 4(m)(5m+1) < 0$$

$$\Rightarrow 81m^2 - 20m^2 - 4m < 0$$

$$\Rightarrow 61m^2 - 4m < 0$$

$$\Rightarrow m(61m - 4) < 0$$

$$\Rightarrow m > 0, m < \frac{4}{61}$$

$$m \in (0, \frac{4}{61})$$

\therefore option 'B' is correct //