

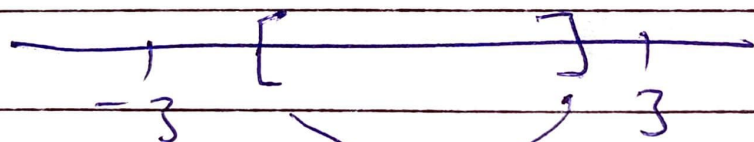
$$S = \{x \in \mathbb{R} \mid x^6 - x^5 \leq 100\}$$

$$x^5(x-1) \leq 100$$

by hit and trial we see

$$-3 \leq x \leq 3$$

Since there is a sign



So there will be closed interval

$\Rightarrow$ S is closed and bounded

Now

$$T = \{x(x-2) : x \in (0, \infty)\}$$

$$x^2 - 2x + 1 - 1 \Rightarrow (x-1)^2 - 1$$

Since

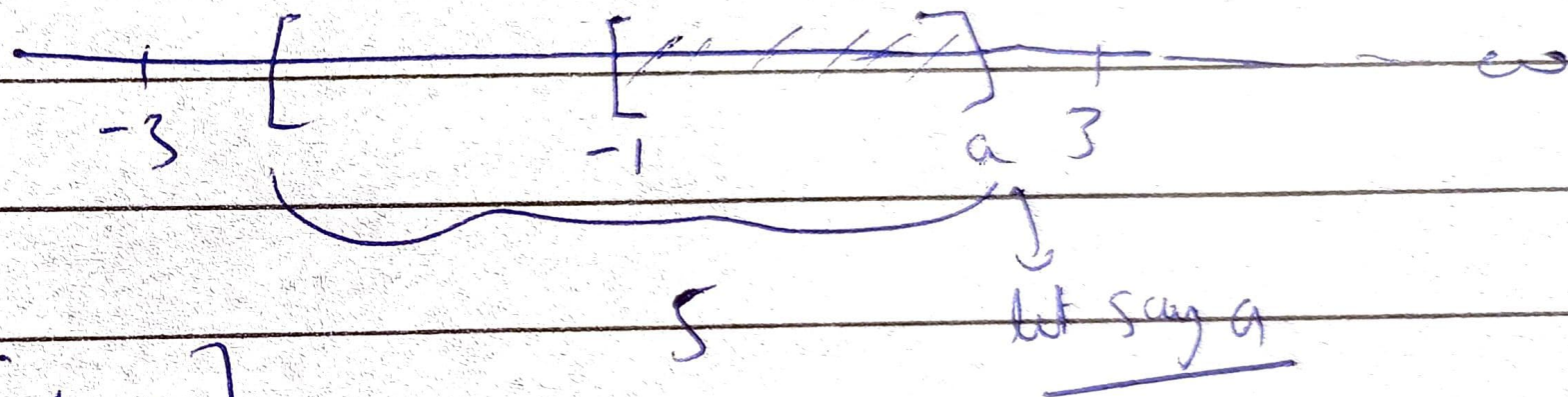
$$(x-1)^2 \geq 0$$

$$\forall x \in (0, \infty)$$

$$\Rightarrow (x-1)^2 - 1 \geq -1$$

$$\forall x \in (0, \infty)$$

$$\Rightarrow \boxed{T \in [-1, \infty)}$$

$SNT =$ 

$$= [-1, a]$$

True closed and bounded

option (i) is correct