

PROBLEM

Let  $f(x) = \int e^x (x-1)(x-2) dx$ . Then  $f$  decreases in the interval (2000S)

(a)  $(-\infty, -2)$

(b)  $(-2, -1)$

(c)  $(1, 2)$

(d)  $(2, +\infty)$

SOLUTION

(c)  $f(x) = \int e^x (x-1)(x-2) dx$

For decreasing function,  $f'(x) < 0$

$$\Rightarrow e^x (x-1)(x-2) < 0 \Rightarrow (x-1)(x-2) < 0$$

$$\Rightarrow 1 < x < 2, \quad \because e^x > 0 \forall x \in R$$