8. $f(x) = e^{x^2-3x}$

① $f'(x) = e^{x^2-3x} \cdot \frac{d}{dx}(x^2-3x)$

$f'(x) = \underbrace{(2x-3)}_{P}\underbrace{e^{x^2-3x}}_{Q}$

$P' = 2 \quad Q' = (2x-3)e^{x^2-3x}$

$P'Q + PQ'$

$f''(x) = 2e^{x^2-3x} + (2x-3)(2x-3)e^{x^2-3x}$

$= e^{x^2-3x}\left[2 + (2x-3)(2x-3)\right]$

$= e^{x^2-3x}(2 + 4x^2 - 6x - 6x + 9)$

$= e^{x^2-3x}(4x^2 - 12x + 11)$

② $e^{x^2-3x} = 0 \qquad 4x^2 - 12x + 11 = 0$

$\ln e^{x^2-3x} = \ln 0 \qquad a=4 \quad b=-12 \quad c=11$

$x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$

$x = \frac{-(-12) \pm \sqrt{(-12)^2 - 4(4)(11)}}{2(4)}$

$= \frac{12 \pm \sqrt{144-176}}{8}$

NO CRIT. #'S

Conc up $(-\infty, \infty)$

No PoI's

③