3. $y = x^3 - 9x^2 + 12x - 6$

FIND POINTS OF INFLECTION

① FIND SECOND DERIVATIVE

$y' = 3x^2 - 18x + 12$

$y'' = 6x - 18$

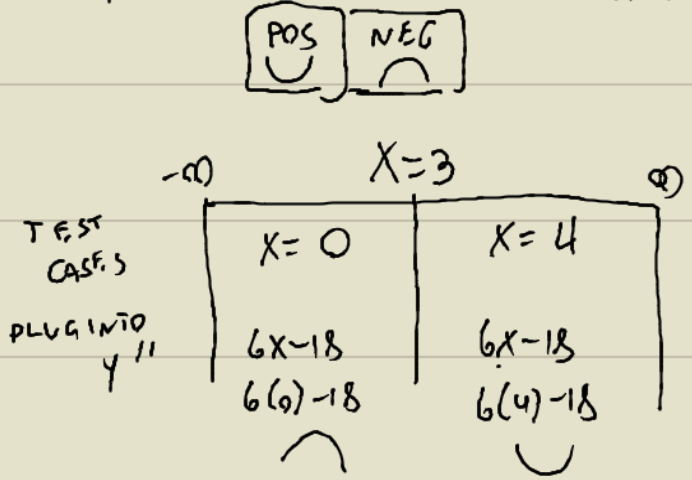
② SET SECOND DERIV. EQUAL TO ZERO AND SOLVE

$6x - 18 = 0$

$6x = 18$

$x = 3$ C.V.'S

③ USING CRITICAL VALUES BUILD A TABLE OF INTERVALS, PICK TEST CASES, PLUG INTO SECOND DERIV. AND SIMPLIFY



④ ASSUMING THE x VALUE IS IN OUR DOMAIN, WHERE THE CONCAVITY CHANGES IS YOUR P.O.I., SO PLUG THE x VALUE INTO ORIG. FUNCTION TO FIND y VALUE

$x = 3$ POI

$y = x^3 - 9x^2 + 12x - 6$

$y = 3^3 - 9(3)^2 + 12(3) - 6$

$= 27 - 81 + 36 - 6$

$= -54 + 30$

$y = -24$

POI: $(3, -24)$