1. $f(x) = \frac{5}{6}x^3 - x^2 + 3x - 1$

$f'(x) = \frac{5}{6} \cdot 3x^2 - 2x^1 + 3$

$f'(x) = \frac{5}{2}x^2 - 2x + 3$

$f''(x) = \frac{5}{2} \cdot 2x - 2$

$f''(x) = 5x - 2$ ←

$5x - 2 = 0$

$5x = 2$

$\frac{5x}{5} = \frac{2}{5}$

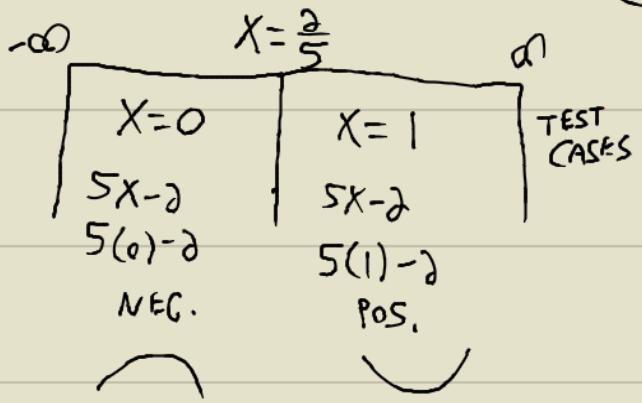
$x = \frac{2}{5}$ ← CRITICAL NUMBERS

FINDING INTERVALS OF CONCAVITY

① FIND SECOND DERIVATIVE

② SET THIS EQUAL TO ZERO AND SOLVE

③ USING CRITICAL NUMBERS BUILD A TABLE OF INTERVALS, PICK TEST CASES, PLUG THEM INTO 2ND DERIVATIVE AND DETERMINE ANSWER



NOTE: IF SIGN IS NEG: CONCAVE DOWN
IF SIGN IS POS: CONCAVE UP

CONC DOWN $(-\infty, \frac{2}{5})$

CONC UP $(\frac{2}{5}, \infty)$