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

Extrema: mins + maxs

derivative = 0, undefined

$f(x) = (x-5)^3(x+2)^2$

$u^3 \cdot v^2$

$a \cdot b$

$da \cdot b + db \cdot a$

Extrema: point

Critical #: x-value

$f'(x) = 3(x-5)^2 \cdot (x+2)^2 + 2(x+2)(x-5)^3$

$0 = (x-5)^2(x+2)\left(3(x+2) + 2(x-5)\right)$

$3x+6 \quad +2x-10$

$0 = (x-5)^2(x+2)(5x-4)$

$0 = (x-5)^2$ $\quad 0 = x+2$ $\quad 0 = 5x-4$

$0 = x-5$ $\quad x = -2$ $\quad x = 4/5$

$x = 5$

Critical #: $-2, 4/5, 5$

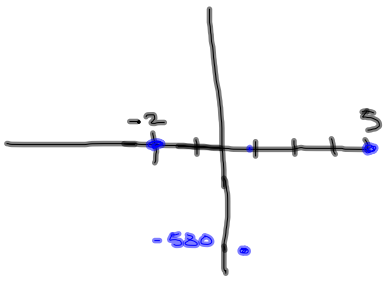
to find min + max
plug into function

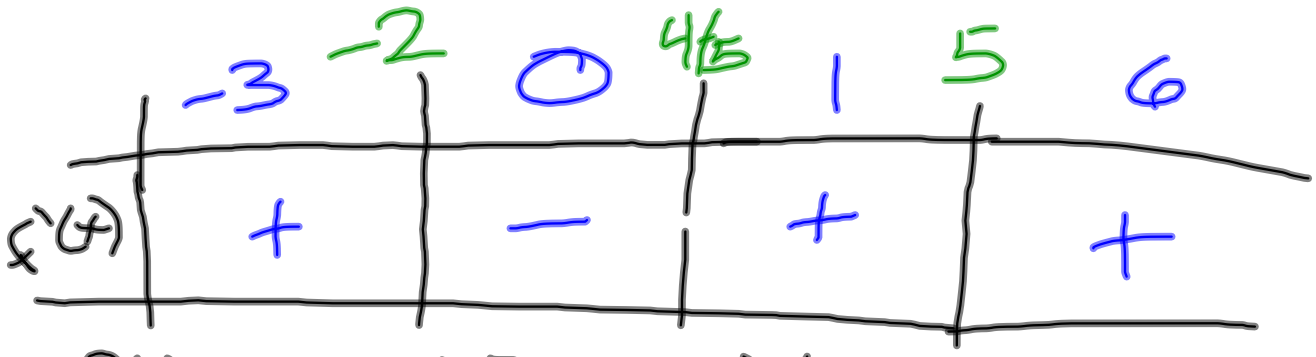
$f(x) = (x-5)^3(x+2)^2$

$f(-2) = (-2-5)^3(-2+2)^2 = 0$

$f(4/5) = (\frac{4}{5}-5)^3(\frac{4}{5}+2)^2 = -530.84$

$f(5) = (5-5)^3(5+2)^2 = 0$





$f(x) = (5-x)^3 (x+2)^2$

CN: $-2, 4/5, 5$

$f'(x) = (x-5)^2 (x+2)(5x-4)$

$+ \quad + \quad +$

$(-\infty, -2)$: increasing

$(-2, 4/5)$: decreasing

$(4/5, 5)$: increasing

$(5, \infty)$: increasing

-2: max

$4/5$: min

1) take derivative

2) set der. equal to zero & solve to get C.N.

3) Also look for what makes funct. undefined.

4) Plug into original func to determine mins & max

5) look at derivative between CN to see if function is increasing or decreasing.