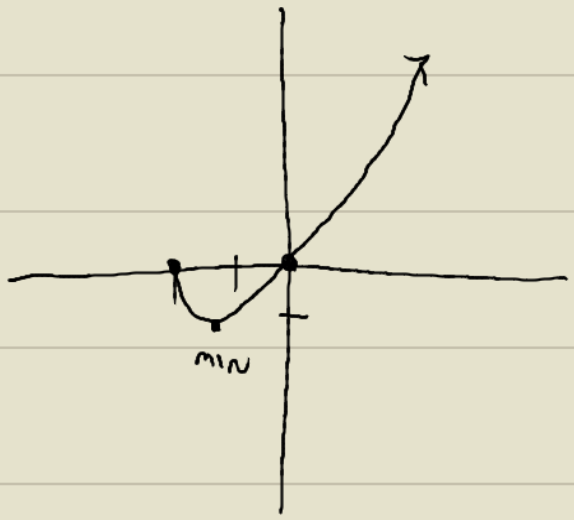


4. $f(x) = 5x^{\frac{2}{3}} - x^{\frac{5}{3}}$

① Domain: $(-\infty, \infty)$

② x-int: $0 = 5x^{\frac{2}{3}} - x^{\frac{5}{3}}$

$0 = x^{\frac{2}{3}}(5 - x^{\frac{3}{3}})$

$0 = x^{\frac{2}{3}}(5 - x)$

$x^{\frac{2}{3}} = 0 \qquad 5 - x = 0$

$x = 0 \qquad x = 5$

③ y-int $\quad y = 5(0)^{\frac{2}{3}} - 0^{\frac{5}{3}}$

$y = 0$

④ VA NONE

⑤ HA NONE

⑥ SA NONE

⑦ INC/DEC

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

$= \frac{10}{3} x^{-\frac{1}{3}} - \frac{5}{3} x^{2/3}$

$= \frac{10}{3x^{1/3}} - \frac{5x^{2/3}}{3}$

$= \frac{10}{3x^{1/3}} - \frac{5x^{2/3} \cdot x^{1/3}}{3x^{1/3}}$

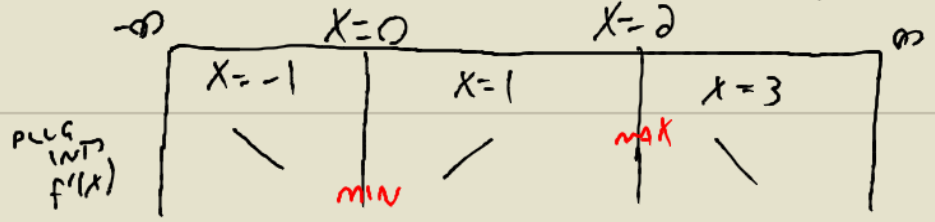
$= \frac{10}{3x^{1/3}} - \frac{5x}{3x^{1/3}}$

$f'(x) = \frac{(10 - 5x)}{(3x^{1/3})}$

$10 - 5x = 0 \qquad 3x^{1/3} = 0$

$10 = 5x \qquad x = 0$

$2 = x$



DEC $(-\infty, 0)$
INC $(0, 2)$
DEC $(2, \infty)$

⑧ REL EXTREMA

REL MIN $(0, 0)$
REL MAX $(2, 4.8)$