C. $f(x) = 2x + 3x^{2/3}$

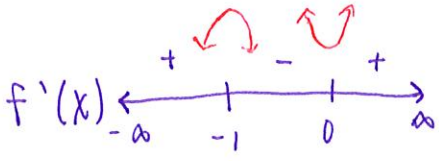
$$f'(x) = 2 + 2x^{-1/3} = 0$$

$$2 + \frac{2}{x^{1/3}} = 0$$

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

$$2x^{1/3} = -2$$

$$x^{1/3} = -1$$



$x = 0, -1$ → critical points

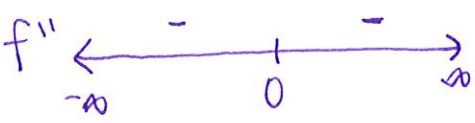
$x = -1$ rel max
$x = 0$ rel min → extrema

$$f''(x) = -\frac{2}{3}x^{-4/3} = 0$$

$$x^{-4/3} = 0$$

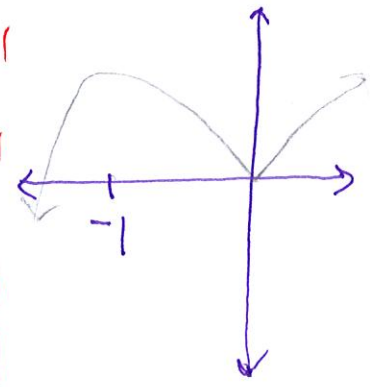
$$\frac{1}{x^{4/3}} = 0$$

$x = 0$ → NOT an inflection point



concave down: $(-\infty, \infty)$

graph of $f(x)$

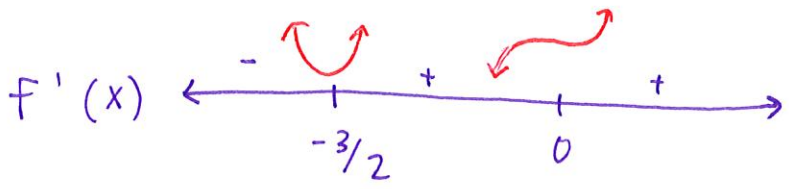


A. $f(x) = x^4 + 2x^3 - 1$

$f'(x) = 4x^3 + 6x^2 = 0$

$2x^2(2x+3) = 0$

$x = 0, -3/2$ → critical points



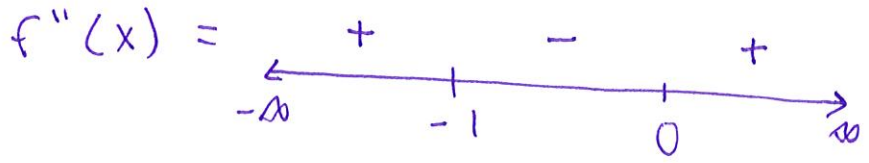
extrema

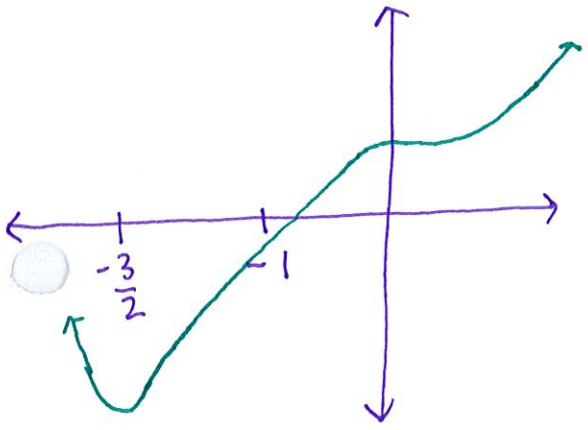
$x = -3/2$ abs min

$f''(x) = 12x^2 + 12x = 0$

$12x(x+1) = 0$

$x = 0, -1$ → inflection points





graph of $f(x)$

concave up:
$(-\infty, -1)$ $(0, \infty)$

concave down:
$(-1, 0)$