Presentation

Find the c.n. of $f(x) = x^{6/5} - 12x^{1/5}$

$$f'(x) = \frac{6x - 12}{5\sqrt[5]{x^4}}$$

f' ∄ at $x = 0$

$f'(x) = 0 \rightarrow x = 2$

$\therefore$ c.n. are $x = 0$ and $x = 2$.

Find the abs. max of $f(x) = x^4 - 8x^2 + 16$ on $[-4, 0]$.

$f'(x) = 4x^3 - 16x$

$f' \exists \forall x$

$f'(x) = 0 \rightarrow x = -2 \text{ or } x = 0 \text{ or } x = 2$

$f(-4) = 144$

$f(0) = 16$

$f(-2) = 0$

$\therefore$ By EVT f has and abs. max of 144.

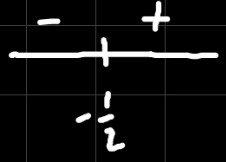
Determine where $f(x) = 2x^3 + 3x^2 - 12x + 1$ is CD.

$f'(x) = 6x^2 + 6x - 12$

$f''(x) = 12x + 6$

$f'' \exists \forall x$

$f''(x) = 0 \rightarrow x = -\frac{1}{2}$



f is CD on $\left(-\infty, -\frac{1}{2}\right)$ because

$f''(x) < 0$ on $\left(-\infty, -\frac{1}{2}\right)$.