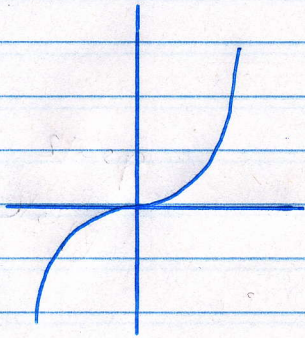


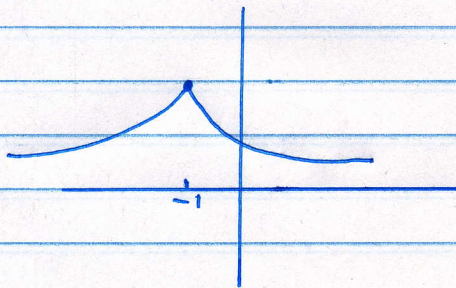
10/30/12

①



Local max or Local min \subseteq set of critical point $\{x \mid f'(x) = 0\}$

- ② sketch a function that is continuous on $(-\infty, \infty)$ and has the property that $f'(-1)$ is undefined, $f'(x) > 0$ on $(-\infty, -1)$ and $f'(x) < 0$ on $(1, \infty)$



- ③ $f(x) = \frac{x^2}{x^2-1}$ on $[-4, 4]$

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

At $x=0$, $f'(x)=0$, $x=0$ critical point, $[-4, 4]$
 $f(x)$ not defined at $x=\pm 1$

$$f'(-2) > 0 \quad f'(\frac{1}{2}) < 0$$

$$f'(-\frac{1}{2}) > 0 \quad f'(2) < 0$$

$$[-4, 4] = [-4, -1) \cup (-1, 1) \cup (1, 4]$$

①