Panel 1

So far:

① Local extrema, incr./decr.

② Inflection points, concave up/down

③ Curve sketching (①+②+asympt.)

④ Abs. extrema on [a,b]

1

Panel 2

$f(x) = \frac{x}{x^2-1}$ sketch $f'(x) = \frac{-(x^2+1)}{(x^2-1)^2} = 0$ $\frac{x+1}{x^2-1}$

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

① Domain: $x \neq \pm 1$

② y-int.: Let $x=0$: $y=0$

③ Asympt.: $x=\pm 1$ vertical $\lim_{x\to c} f(x) = \pm\infty$

$y=0$ h.a. $(\lim_{x\to\pm\infty} f(x) = c)$

④ Critical: $x = \pm 1$

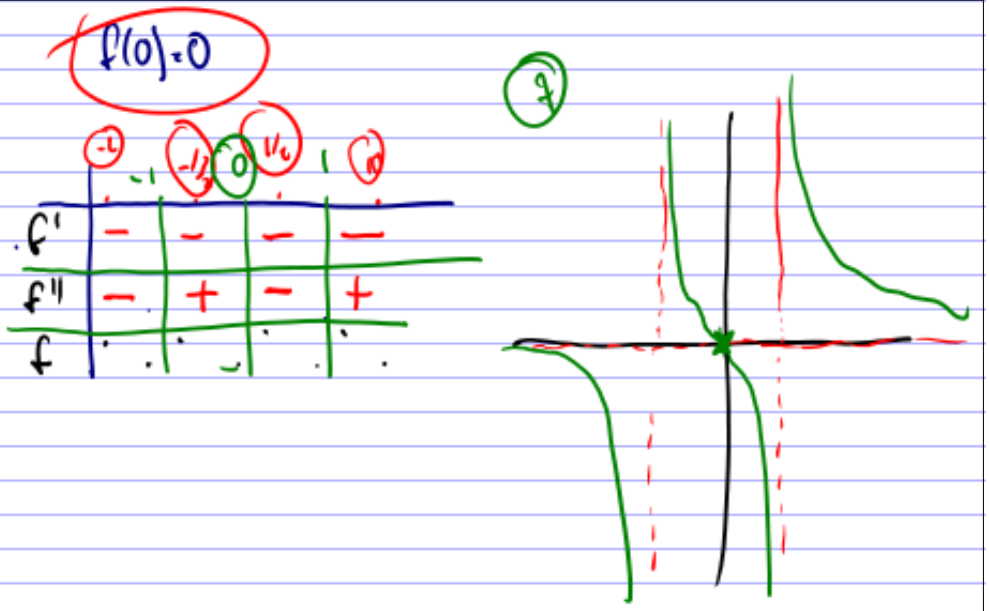
⑤ Poss. Infl. pts: $x = 0, \pm 1$,

⑥ $f(0) = 0$,

	-2	-1	-1/2	0	1/2	1	2
f'		−	−	−	−	−	
f''		−	+	−	+		
f		∩	∪	∩	∪		

2

Panel 3



3

Panel 4

Name: _____

Quiz #8

$f(x) = \dfrac{x^2-1}{x^2-4}$ $\quad f'(x) = \dfrac{-6x}{(x^2-4)^2}$, $\quad f''(x) = \dfrac{6(3x^2+4)}{(x^2-4)^3}$

Make sure to mention the domain, intersects, asymptotes, extrema (if any), inflection points (if any), incr., decr., concave up, and concave down.

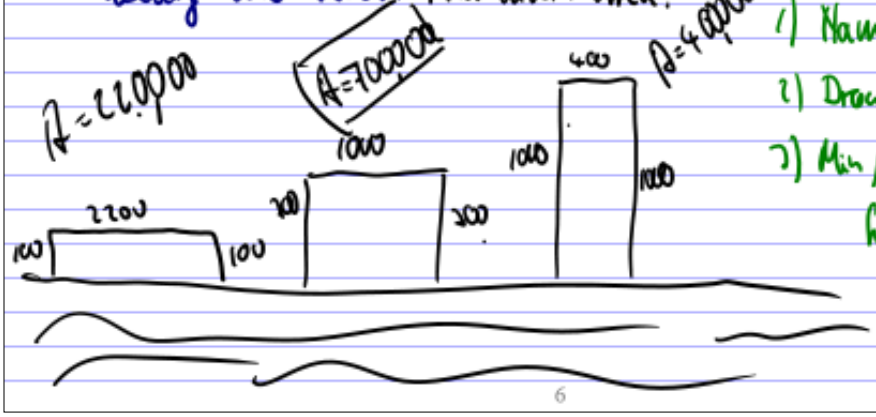
4

Panel 5

Panel 6

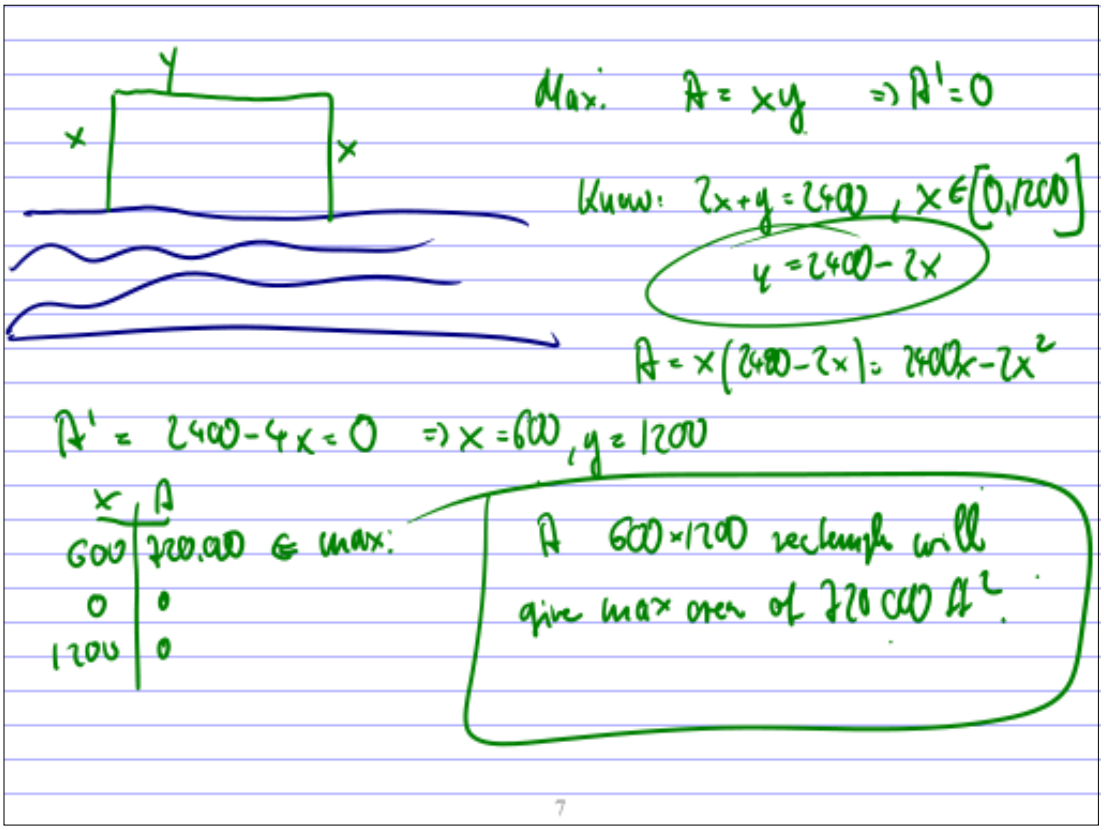
Optimization Problems

Typical problem: A farmer has 2400 feet of fencing. She wants to enclose a rectangular area bordering a river. She needs no fencing along the river. Find max. area!



1) Name variables
2) Draw picture
3) Min/max by finding $f' = 0$

Panel 7



Panel 8