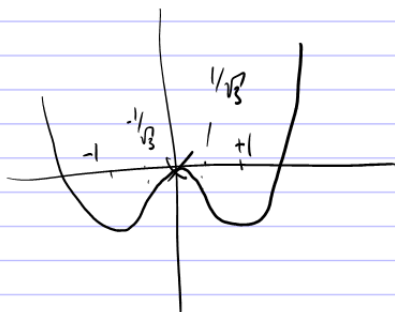


Panel 1

Review graphing $f(x) = 2x^4 - 4x^2 + 1$



1

Panel 2

• If $f(x) = x^3 - 6x^2 + 9x + 2$, find all local extrema!

$$f'(x) = 3x^2 - 12x + 9 = 0$$

$$= 3(x^2 - 4x + 3) = 0$$

$$= 3(x-1)(x-3) = 0$$

$$\Rightarrow x=1, x=3$$

	1	3	
f'	+	-	+
f	↗	↘	↗

$x=1$ is max

$x=3$ is min

2

Panel 3

If $f(x) = x^2 - 6x + 9$ and $0 \leq x \leq 2$, then find the absolute max. and min.!

$f'(x) = 2x - 6 = 0, x = 3$

x	f(x)
0	9
2	4 - 12 + 9 = 1
3	

abs. max is 9 at $x = 0$

abs. min is 1 at $x = 2$

Panel 4

Ex: Draw $f(x) = \frac{x-1}{x^2}, f'(x) = \frac{2-x}{x^3}, f''(x) = \frac{2(x-3)}{x^4}$

Procedure

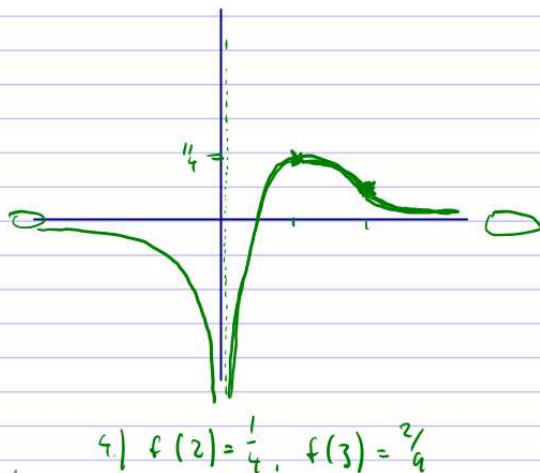
- Asymptotes
 - horiz.: $\lim_{x \rightarrow \infty} \frac{x-1}{x^2} = 0, y = 0$
 - vertical: at $x = 0$

2. critical: $x = 0, 2$

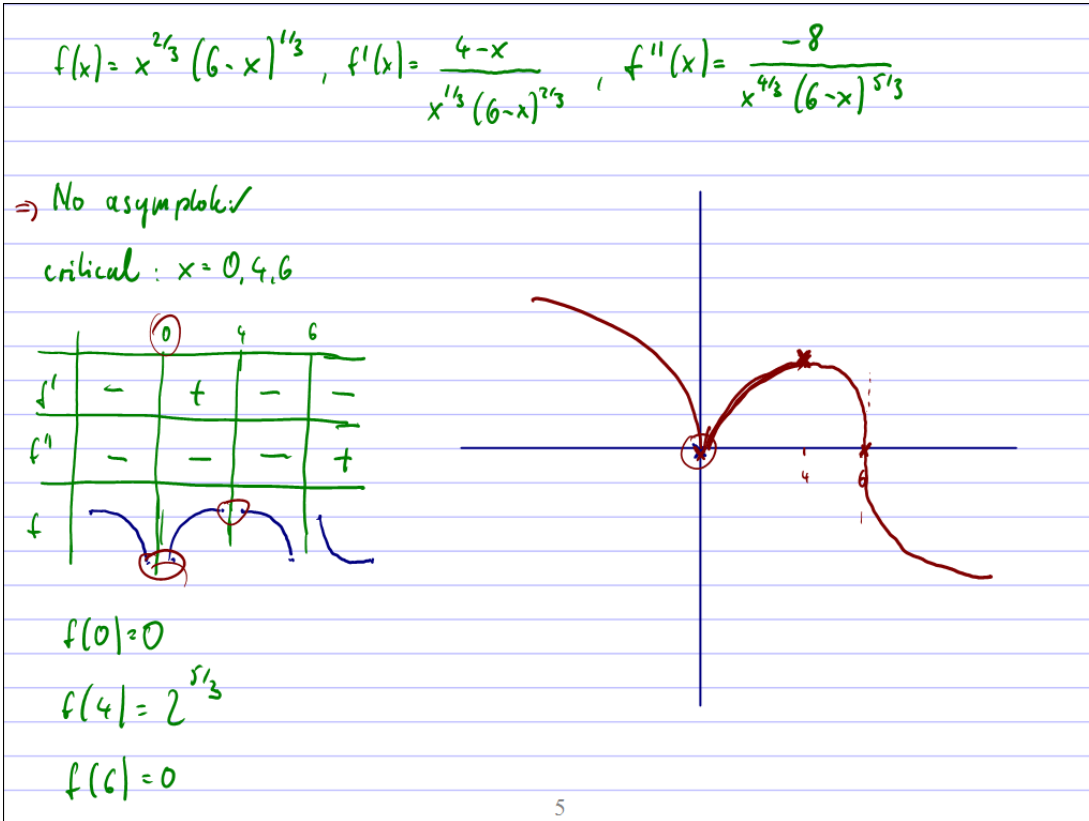
inflect: $x = 0, 3$

3.

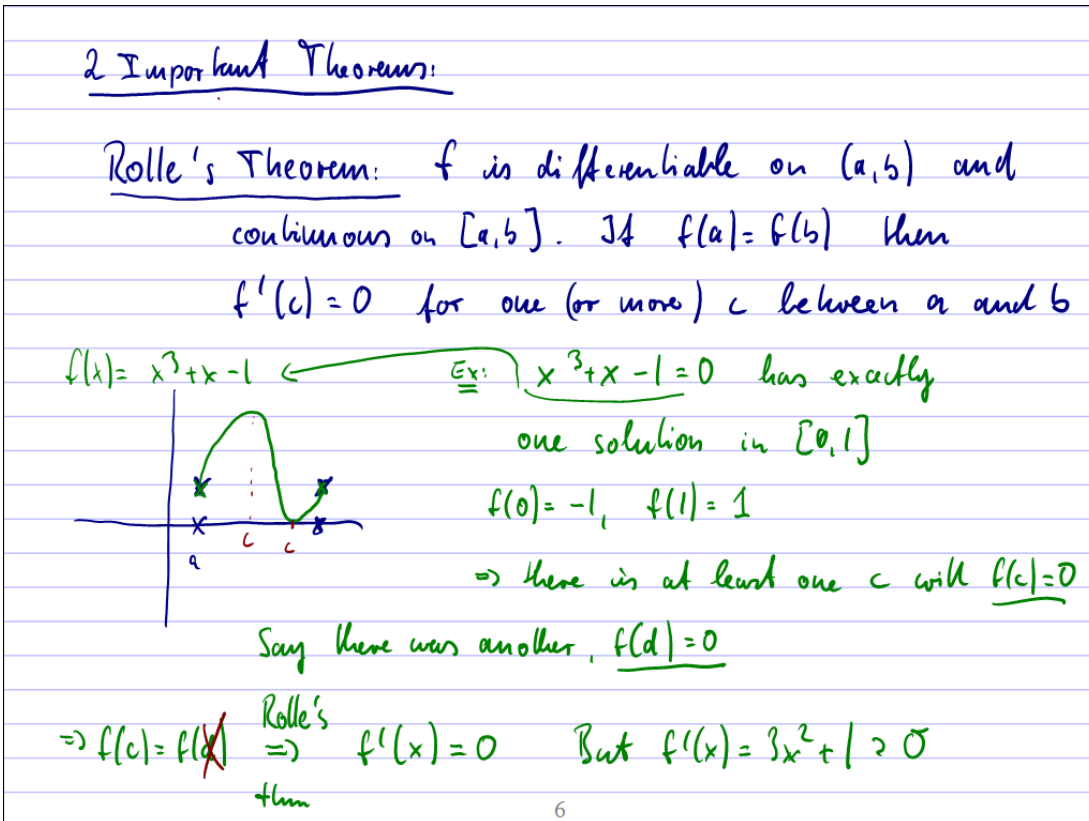
	$-\infty$	0	2	3	$+\infty$
f'	-	+	-	-	-
f''	-	-	-	+	+
f					



Panel 5



Panel 6



Panel 7

2nd Application next time

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7