

Monday, October 1

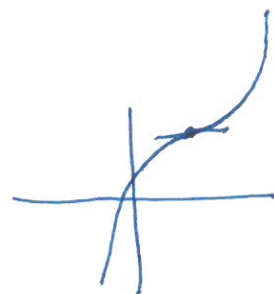
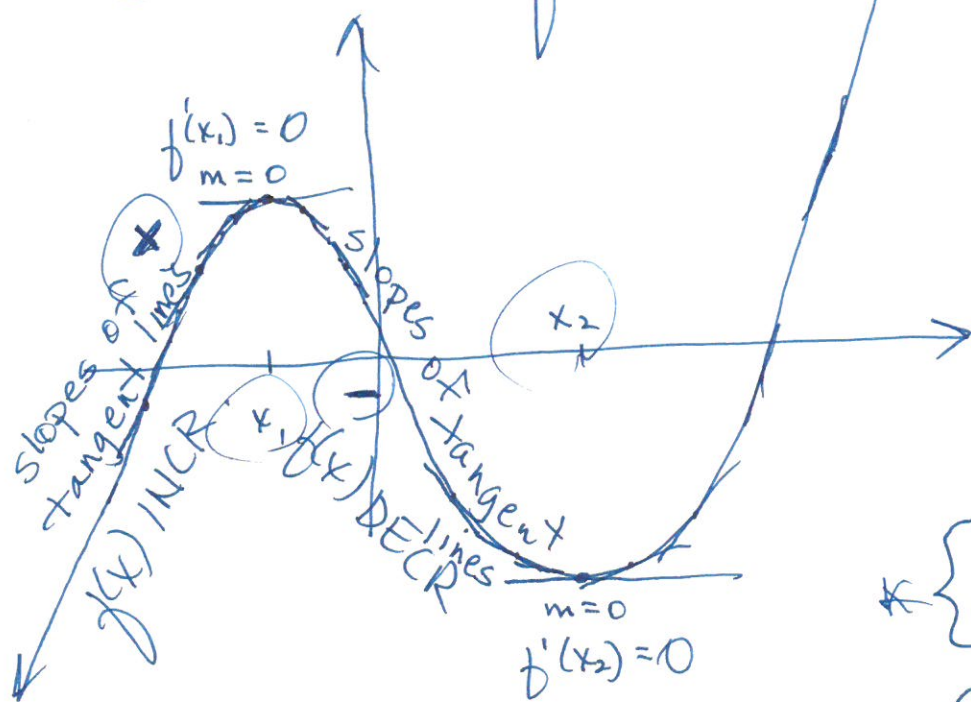
today:

2.1: using $f'(x)$: { TEST #1 RETURNED; GRADING APPEALS

wednesday: (yes, we will meet)

2.2: using $f''(x)$:

2.1: USING $f'(x)$:

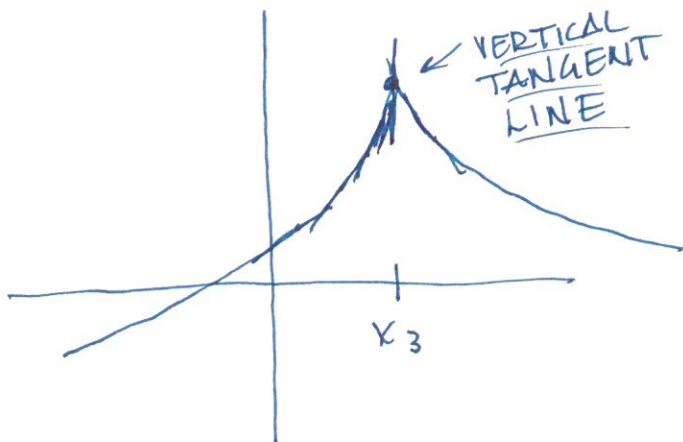


① $f'(x) = 0$ ✓
"FLAT" places

* $\begin{cases} f'(x) = + \\ f(x) \text{ INCR} \end{cases}$

* $\begin{cases} f'(x) = - \\ f(x) \text{ DECR} \end{cases}$

② $f'(x)$ D.N.E.



USING $f'(x)$:

① find $f'(x)$:

② (a) $f'(x) = 0$
"FLAT" places

→ (b) $f'(x)$ DNE
"STEEP" places

CRITICAL NUMBERS

x_1, x_2, x_3

CRITICAL POINTS

$(x_1, f(x_1)) (x_2, f(x_2))$

③ use a chart to determine where $f'(x)$ is pos, neg.



$f(x) = 12 + 9x - 3x^2 - x^3$ cubic polynomial

$f'(x) = 0 + 9 - 6x - 3x^2 = 0$

① $9 - 6x - 3x^2 = 0$ ✓

② ~~$f'(x)$ D.N.E.~~

$-3 [x^2 + 2x - 3] = 0$

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

~~$-3 = 0$~~

$x + 3 = 0$

$x - 1 = 0$

$(1, 17)$
FLAT

$x = -3$

$x = 1$

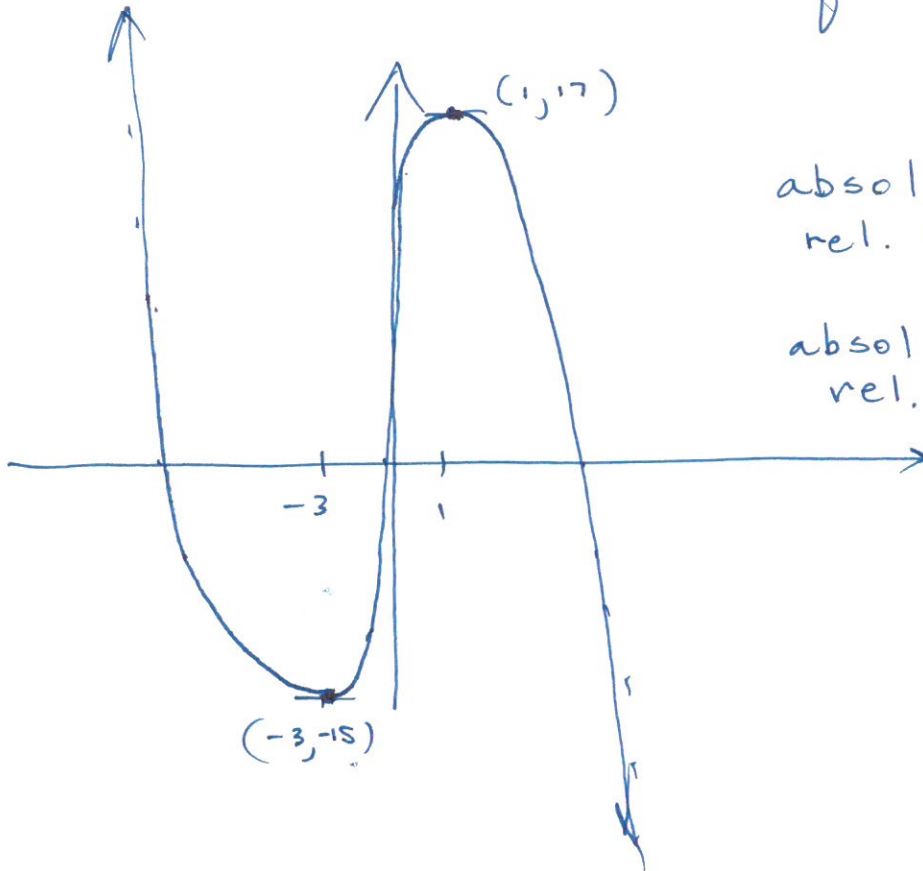
$(-3, -15)$
FLAT

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

$f(-3) = 12 - 27 - 27 + 27 = -15 = 17$

$f(1) = 12 + 9(1) - 3(1)^2 - (1)^3 = 12 + 9 - 3 - 1$

$f'(x):$ \ominus \oplus \ominus ③
 $f'(-4) = - \dots -$ $f'(0) = - \dots + \dots -$ $f'(2) = - \dots + \dots +$
 $f(x)$ DECR \ominus $f(x)$ INCR \oplus $f(x)$ DECR \ominus
 $f'(x) = \ominus 3(x+3)(x-1)$



absol max: none
 rel. max: $(1, 17)$

absol min: none
 rel. min: $(-3, -15)$

non-polynomial:

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

$$y' = 0 - \frac{2}{3} x^{-1/3} = \frac{-2}{3 \sqrt[3]{x}}$$

a) $y' = 0$

$\frac{-2}{3 \cdot \sqrt[3]{x}} \neq 0$

no "flat" places

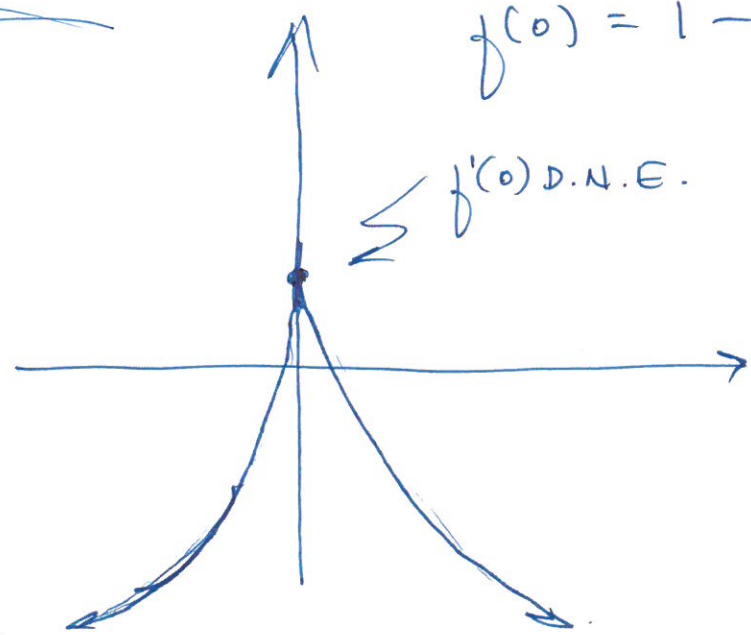
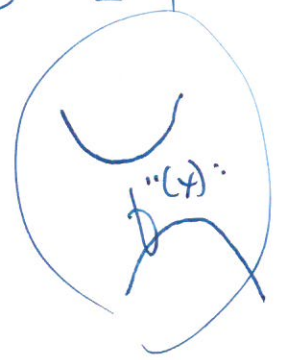
b) y' D.N.E

$\frac{-2}{3 \cdot \sqrt[3]{x}}$ undef??

when $x = 0$

$(0, f(0)) = (0, 1)$

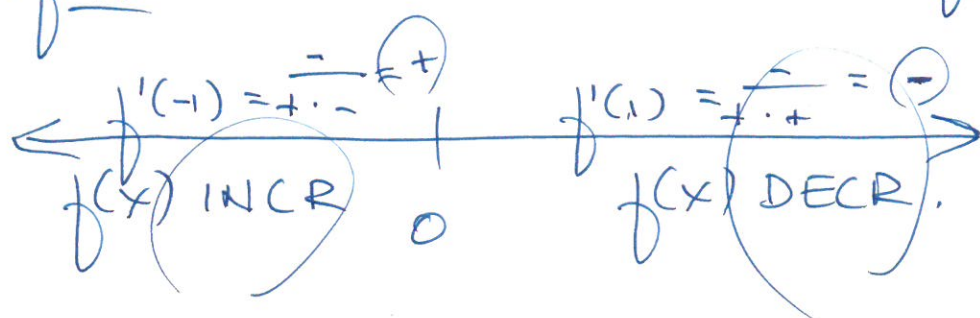
$f(0) = 1 - 0^{2/3} = 1$



$f'(0)$ D.N.E.

$f'(x):$

$f'(x) = \frac{-2}{3 \cdot \sqrt[3]{x}}$



Subject: MA 121-003 Lecture Assistant Office Hours

From: KARTHEEK MANAVARTHI <kmanava@ncsu.edu> **

Date: 10/1/18, 9:54 AM

To: John Griggs <jrgriggs@ncsu.edu>

121-003
F18

Dear Professor,

I've spoken to Ms. Gunton about the space to hold office hours and I would like to hold hours on **Monday 3:00-4:00pm in MN 321.** ✓

THURS

I'll also attend the class today to meet with the other Assistants and you Sir.

Thank you.

Yours sincerely,
Karthek

MA 121 - 003

TEST #1 RESULTS

A's:	<u>66</u>	(30.3%)	}	<u>48.1%</u>
	(100+ : 25)			
B's:	<u>38</u>	(17.6%)		
C's:	<u>36</u>	(16.7%)		
D's:	<u>28</u>	(13%)	}	<u>35.2%</u>
F's:	<u>48</u>	(22.2%)		

AVE: 74.62%