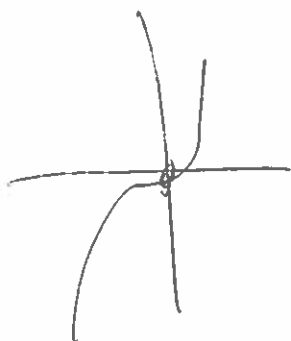


Polynomials of Degree
"n" have "n" zeros

Fundamental Theorem of Algebra

$$y = x^3 \rightarrow x \cdot x \cdot x$$

Zeros: 0, 0, 0



May not be real

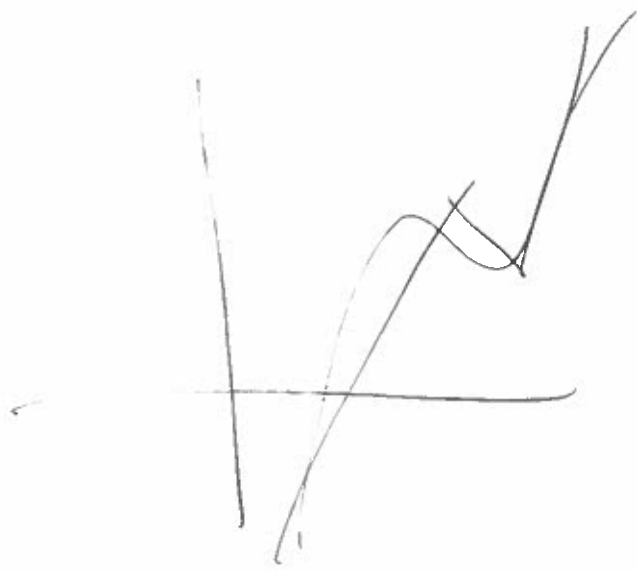
$$i = \sqrt{-1}$$

$$(x + i)(x - i) = x^2 + \cancel{xi} - \cancel{ix} - i^2$$

$$x^2 - (-1)$$

$x^2 + 1$ (circled)

Zeros: $-i, i$

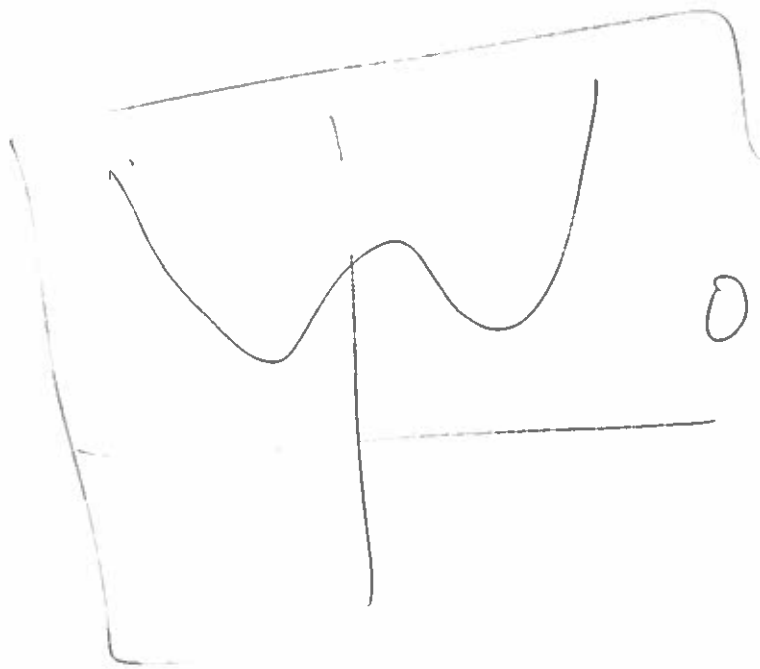


$n=3$ $A \times 3$

1 real

2 complex

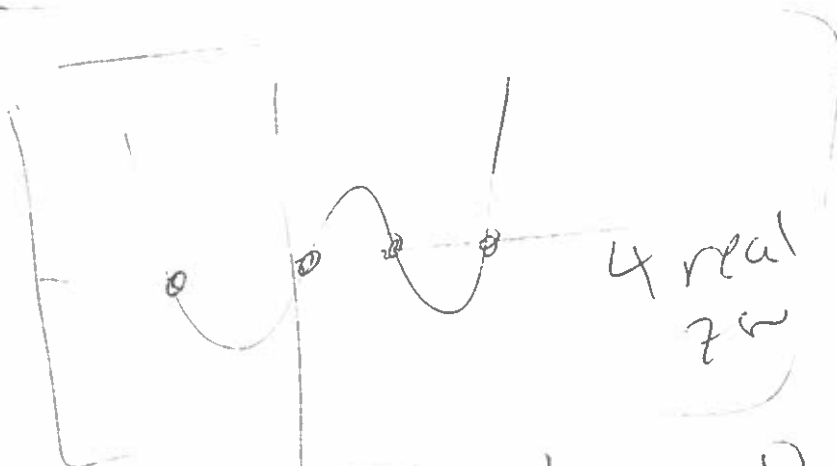
3 Face -



$n=4$

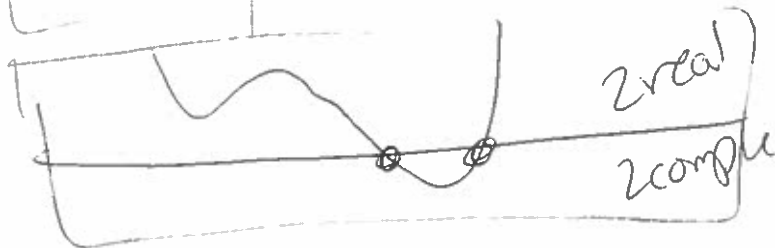
0 real
 $z \in \mathbb{C} \Rightarrow$

$n=4$



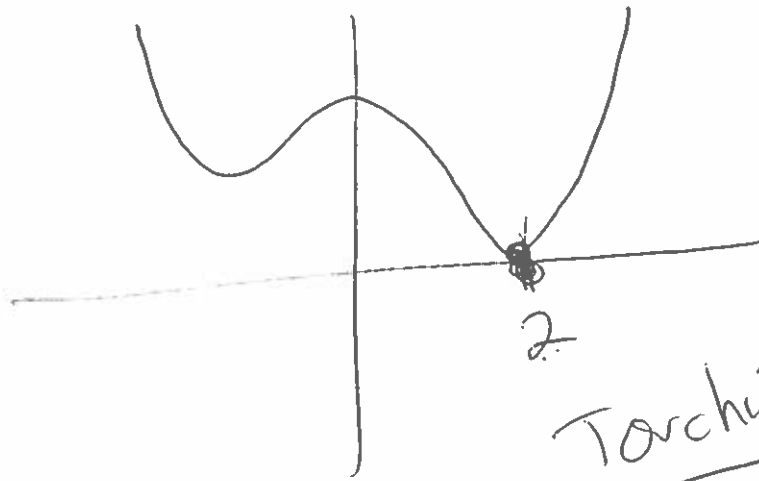
4 real
 $z \in \mathbb{R}$

$n=4$



2 real
 2 complex

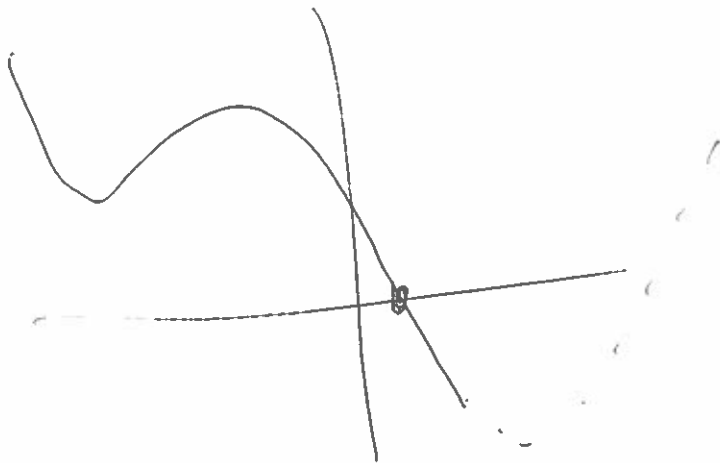
$n=4$



$$n=4$$

Touching

Factor $(x-2)^2(x-2)$
 $2, 2$



TODAY:

Data \rightarrow Cubic Regression

Find Zero

Zoomed

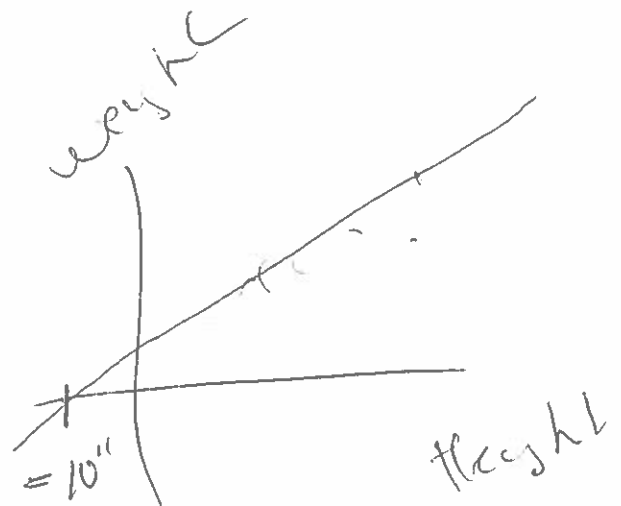
Calc 2: zero

Left Bound: 2

Right Bound: 4

Guess: 4

$X = 3 \quad Y = 0$



At a height = -10"
The expected weight = 0 lbs

GROUP NAME: We ^{is} Screw
 Date: 2-4-14

Student Names (First and Last)
 Speaker/Presenter: Yvette Aguilar

Independent Variable (x-axis): Amount of cupcakes
 Dependant Variable (y-axis): time

Writer/Prep: Marta Trusek
 Leader/Collaborator: LOVE KENNETH

Conclusion (in words): in 17 min we can make 0 cupcakes

Supporting Work:

time	#cup
24	24
35	48
47	72
58	96
70	120

Cubic regression

$$y = 6.52x^3 - 1.05x^2 + 6.87x - 90.9$$



zero
 left hand - 78
 right hand 80
 given = 180

GROUP NAME:

Student Names (First and Last)

Date: Feb 4

Speaker/Presenter: Kevin Leonardo

Independent Variable (x-axis): Height (inches)

Writer/Prep: Benjamin Infesino

Dependant Variable (y-axis): Weight (lbs.)

Leader/Collaborator: _____

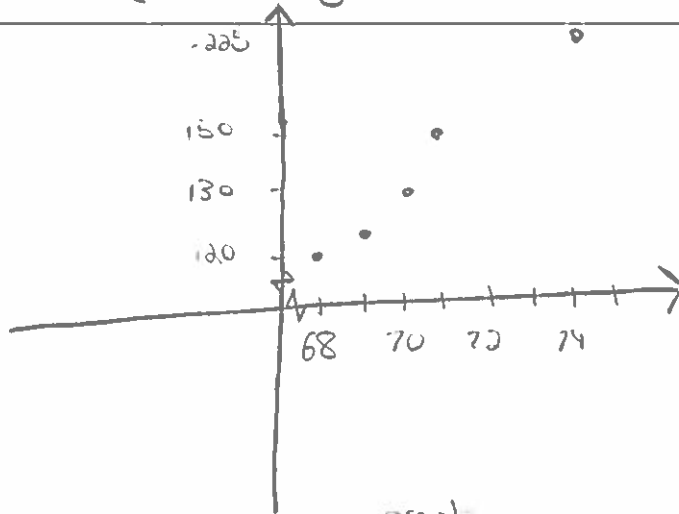
Conclusion (in words):

zero of graph is $(82.53, 0)$

so, someone that's 82.53 inches (6 foot 9 inches) tall will weigh 0 lbs.

Supporting Work:

Height (in)	Weight (lbs)
70	130
75	225
71	150
69	125
68	120



graph

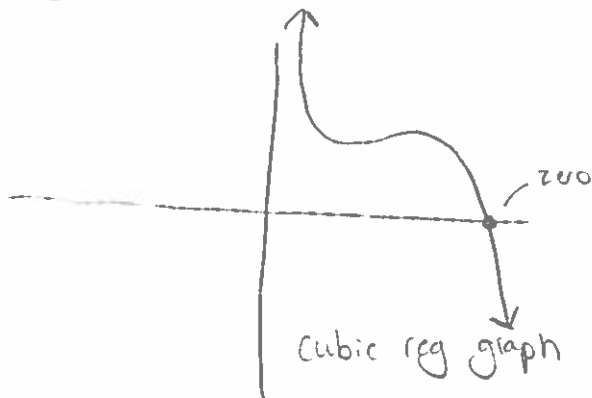
disc left

cubic x^3

one zero $(82.53, 0)$

Cubic Reg

$$y = -0.386x^3 + 74.1x^2 - 6079x + 146137$$



x-intercept: $(82.53, 0)$

GROUP NAME:

Tecum

Student Names (First and Last)

Date: 4 Feb 2014

Speaker/Presenter: Paul Klof

Independent Variable (x-axis): price of gas

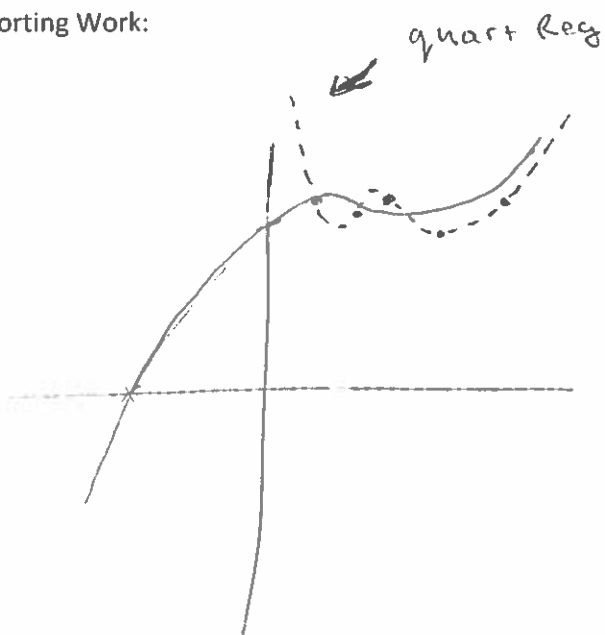
Writer/Prep: Byron Wilson

Dependant Variable (y-axis): miles traveled

Leader/Collaborator: Zicky Wilson

Conclusion (in words): If you stay at 0 miles, you could save \$17.13.

Supporting Work:



- Calculated cubic regression
- zoom fit
- calculated zero 2nd Trace 2:
- left bound = -20
right bound = .8
guess = Enter

$x = -17.12908$
 $y = 0$

* Disco Right

Distance can't be negative. Since it's a cubic regression our graph shows us negative. If it was a quartic regression it will always be positive.

x	y
10	3.3
20	3.15
30	3.45
40	3
50	3.35

Team 1

GROUP NAME:

Student Names (First and Last)

Date: 4/14

Speaker/Presenter: Douan Thomas

Independent Variable (x-axis): price of movie

Writer/Prep: Alicia Contreras

Dependant Variable (y-axis): amount of money

Leader/Collaborator: Zoloo

Conclusion (in words):

we will not make any money if we sell 100 or less

Supporting Work:

Cubic function
find zero

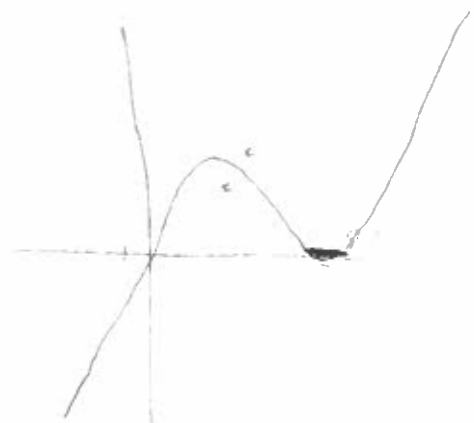
$100 - 10x = 0$
 $100 = 10x$
 $10 = x$

$x = 10$

$y = 0$

No one will buy 100 or less

x	y
0	100
10	0
20	100



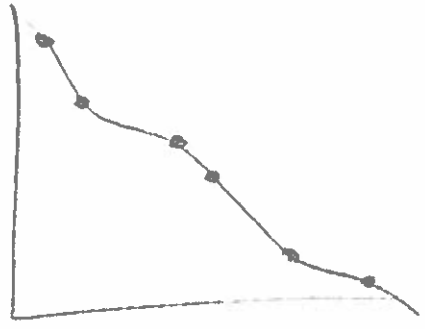
GROUP NAME: Math Lovers
 Date: 2/4/14
 Independent Variable (x-axis): ^{Price} \$ 161.71 calculator
 Dependant Variable (y-axis): sell 0 calculator

Student Names (First and Last)
 Speaker/Presenter: Osman Rehman
 Writer/Prep: Karthik Raju
 Leader/Collaborator: Alvin Brown

Conclusion (in words):
 when we charge \$161.71 Dollars we get nothing (zero)

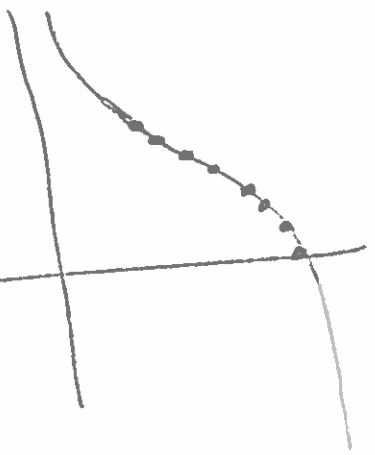
Supporting Work: Calculator

Price	sell
\$ 70	50
\$ 80	40
\$ 100	35
\$ 110	30
\$ 130	20
\$ 150	10



$x = 161.71$ $y = 0$

Zero
 left bond = 161.5
 right bond = 23
 given 161.71




<p>GROUP NAME: <u>This Group, Best Group</u> Date: <u>2/4/14</u></p>	<p>Student Names (First and Last) Speaker/Presenter: <u>Jesse Schurman</u></p>
<p>Independent Variable (x-axis): <u>Price of Laptop</u> Dependant Variable (y-axis): <u>Prof + from sale</u></p>	<p>Writer/Prep: <u>Fully / Khaled Hasoun</u> Leader/Collaborator: _____</p>

Conclusion (in words):
 If we sell a laptop at $\$167.06$ we will make a $\$0.00$ profit.

Supporting Work:

Cubic Regression
 $1.497...x^3 - .002...x^2 + 1.667...x - 516.565...$



Zero

Left Bound = 110.6383
 Right Bound = 251.06353
 $x = 167.0598 \quad y = 0$

GROUP NAME: Newbies

Student Names (First and Last)

Date: 2/4/2014

Speaker/Presenter: Li Feng Lin

Independent Variable (x-axis): Prices of Laptops

Writer/Prep: Khrystyna Pawlychuk

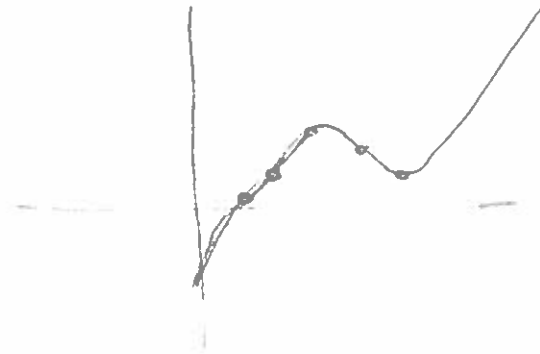
Dependant Variable (y-axis): Revenue of Laptops

Leader/Collaborator: _____

Conclusion (in words): Zero ~~to~~ 642.50
If we charge 1850 for a laptop then we won't sell any.

Supporting Work:

Prices	Revenue
700	7000
900	18000
1000	17000
1250	37500
2000	30000
3000	18000



Cubic Regression

$$1.37x^3 - .09x^2 + 190.09x - 87412.47$$

Mary King

GROUP NAME:

Student Names (First and Last)

Date: 2/4/14

Speaker/Presenter: Melissa Scarpali

Independent Variable (x-axis): price

Writer/Prep: Mary King

Dependant Variable (y-axis): number of iPhones

Leader/Collaborator: Melissa Scarpali

Conclusion (in words):

When the price is \$700 for an iPhone, the number of iPhones is 100.

Supporting Work:

[STAT] 1-EDIT

[2nd] [Y=]

[ZOOM] 1

[F1] 1

[Y=] [VARS]

[CLEAR]

[ZOOM] 1

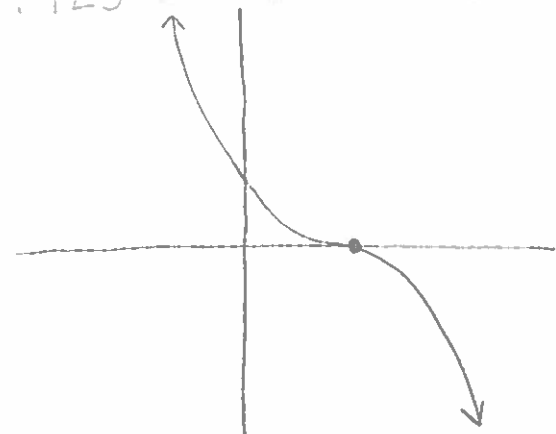
[2nd] [TRACE] 2

OVER 1000

WINDOW

ENTER

$$y = -.425x^3 + 10339x^2 - .0281x + 215821$$



Left window = -1,252
Right window = -32.4

Handwritten notes and scribbles on the right side of the graph.

GROUP NAME: Team 1000

Date: 1/19

Student Names (First and Last)

Speaker/Presenter: C. Ford

Independent Variable (x-axis): price

Dependent Variable (y-axis): CUSTOMERS

Writer/Prep: C. Ford

Leader/Collaborator: El Ampon 89

Conclusion (in words): There is a negative correlation between price and customers. As price increases, the number of customers decreases.

Supporting Work:

L1 \$ money	L2 price
15	30
20	10
50	10
60	9
100	6

Cubic Regression

$$1) \frac{1}{x} = x^{-1}$$

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

$$3) \frac{1}{x^3} = x^{-3}$$

$$4) \frac{1}{x^4} = x^{-4}$$

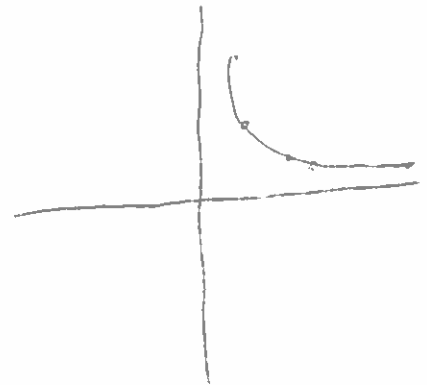
$$y = ax^3 + bx^2 + cx + d$$

$$y = -4.1x^3 + 0.22x^2 + 1.85x + 52.3$$

Vars $\Rightarrow \Rightarrow 1$

Graph

Calc 2:



Disc left

GROUP NAME:

Student Names (First and Last)

Date: 2-4-13

Speaker/Presenter: Craig Slavich

Independent Variable (x-axis): Price of each filled cup

Writer/Prep: Victor Franco

Dependant Variable (y-axis): Quantity sold

Leader/Collaborator: Zachary Labkaner

Conclusion (in words): If the price is set to $-\$26.822$ the number sold equals zero.

Supporting Work:

Price X	Quantity Sold Y
\$ 90	20
\$ 80	21
\$ 100	8
\$ 120	5
\$ 140	3

Zero at $x = -26.822$

Left bound: -75
Right Bound: 223

