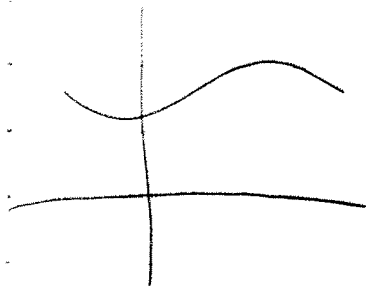
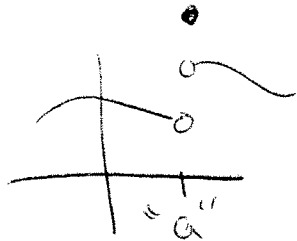


Continuity

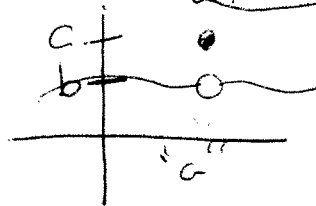


Don't
Pick-up
Pen.

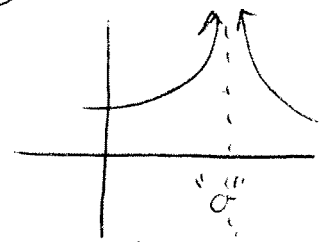
Not continuous
at "a"



Jump
discontinuity



hole



"Vertical
Asymptote"

$$\lim_{x \rightarrow a} f(x) = \text{DNE}$$

$$\lim_{x \rightarrow a} f(x) = b$$

$$\lim_{x \rightarrow a} f(x) = \infty$$

$f(a)$ has to exist \rightarrow

$f(a)$ doesn't exist \rightarrow

TEST For Continuity

For continuity at "a"

1. $\lim_{x \rightarrow a}$ exists OR
2. $f(a)$ exists
3. $\lim_{x \rightarrow a} f(x) = f(a)$

$$\lim_{x \rightarrow a^-} f(x) = \lim_{x \rightarrow a^+} f(x)$$

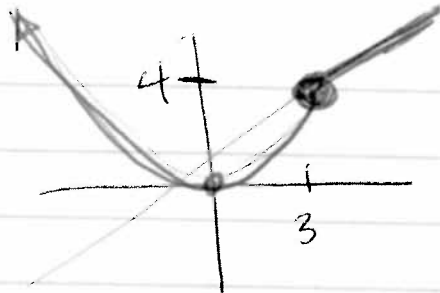
EX

$$f(x) = \begin{cases} x + 1 & x > 3 \\ kx^2 & x \leq 3 \end{cases}$$

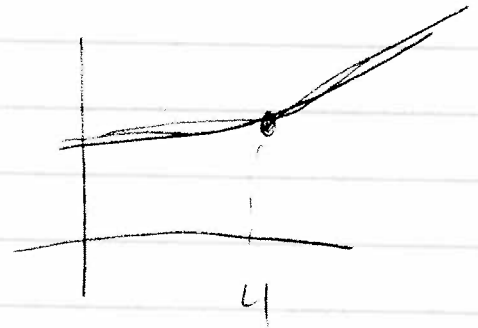
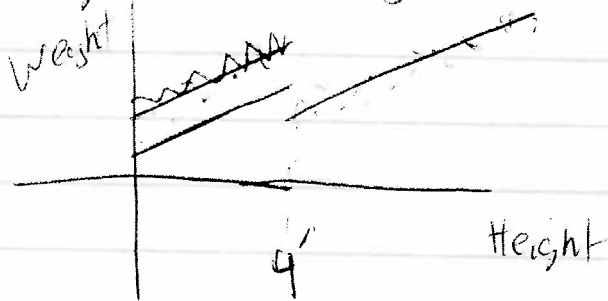
Find
"k" so
 $f(x)$ is continuous

$$\lim_{x \rightarrow 3} f(x) = 4 = 9k \quad \lim_{x \rightarrow 3^-} f(x) = 9k$$

$$\lim_{x \rightarrow 3^+} f(x) = 4$$



Regression Project



$$Y_1 = \text{Quad reg } / (x < 100) - 1.33$$

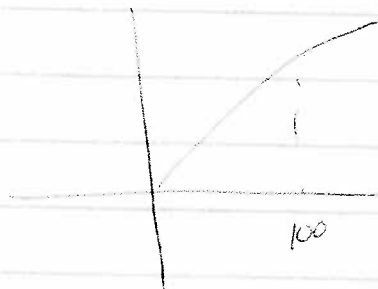
$$Y_2 = \text{Ln reg } / (x \geq 100) + 1.33$$

TABLE

X	Y_1	Y_2
100	114.16	111.5
	112.83	112.83

$$\begin{array}{r} 114.16 \\ - 111.50 \\ \hline 2.66 \end{array}$$

$$(2.6603914...)$$



At $x = 100$ y should be 112.83

GROUP NAME: <u>Wolf Pack</u>	Student Names (First and Last)
Logo:	Speaker/Presenter: <u>Quay</u>
Date: <u>9/9</u>	Writer/Prep: <u>Dominic C.</u>
Topics:	QC/Leader: <u>Jared</u>

Instructions:

YEAR	SPEED	x	y_1	y_2
1996	14	ⓐ 2003	5221.9	3906.5
1998	28		5221.9	
2001	56		- 3906.5	
2003	6000		<u>1315.4</u>	
2006	10000		$\frac{1315.4}{2} = 657.7$	

$y_1 - 657.7$
 $y_2 + 657.7$

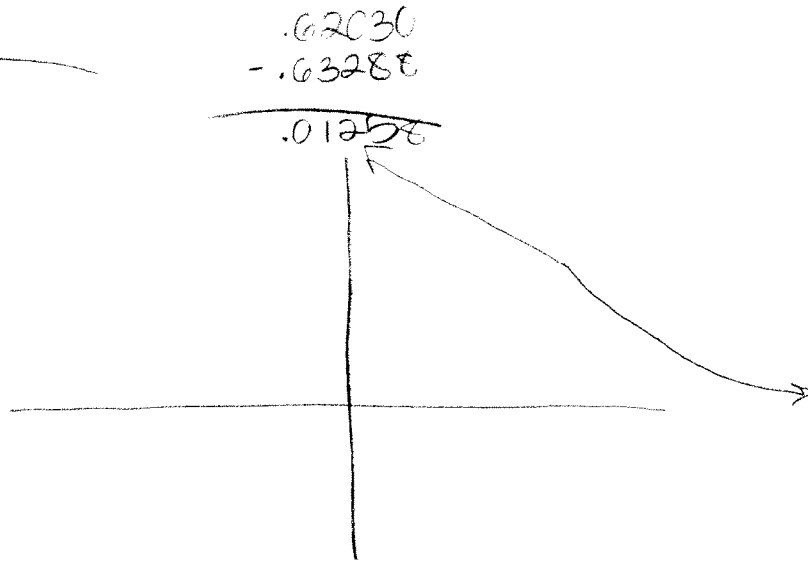
4564.2 ←

IN YEAR 2003, AT ONE POINT THE SPEED THAT WAS AVAILABLE FOR US WAS 4564.2 kb

<p>GROUP NAME:</p> <p>Logo:</p>	<p>Student Names (First and Last)</p> <p>Speaker/Presenter: <u>Kyle Inverso</u></p>
<p>Date: <u>9/19</u></p> <p>Topics: <u>Continuity</u></p>	<p>Writer/Prep: <u>Aidan Callahan</u></p> <p>QC/Leader: <u>Logan Hockenbury</u></p>

Instructions:

x	y
1927	10
1937	42
1947	85
1957	72
* 1967	62
1977	51
1987	42



The difference between $y_2 - y_1$
 is $-.01258$

$y_1 = \text{linear}$
 $y_2 = \text{quadratic}$

<p>GROUP NAME: <u>the factors</u></p> <p>Logo:</p>	<p>Student Names (First and Last)</p> <p>Speaker/Presenter: <u>Ryan Bigley</u></p>
<p>Date: <u>9/9/13</u></p>	<p>Writer/Prep: <u>Kevin Andrews</u></p>
<p>Topics: <u>Continuous Equation</u></p>	<p>QC/Leader: <u>Ethan Stewart</u></p>

Instructions:

x	y ¹	y ²
1975	2.387	2.387

cubic regression
quadratic regression

$$y^1 = 2.387499972 - 0.000000001$$

$$y^2 = 2.387499970 + 0.000000001$$

in 1975 our regression predicts the government spent 2,387,499,971\$ on infrastructure

GROUP NAME: Time Is Money



Logo:

Student Names (First and Last)

Speaker/Presenter: Angelika Mazurek

Writer/Prep: Shyam Singh (Shiv)

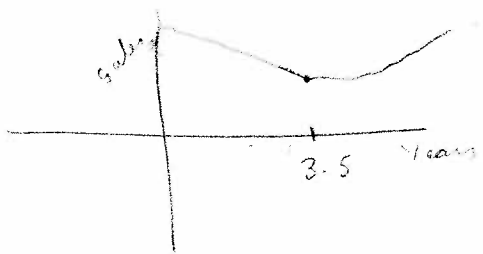
QC/Leader: Eugenio Pelaez

Date: 9/9/13

Topics: Continuity / Regression Project

Instructions:

Sale of iPhone 4S.



$$\begin{aligned}
 Y_1 &= \text{Lin Reg} & / & (x \leq 3.5) + 59.55. \\
 Y_2 &= \text{Reg} & / & (x \geq 3.5)
 \end{aligned}$$

Table		
x	y_1	y_2
3.5	290	349.55

$$y_1 - y_2 = 59.55.$$

2nd TABLE

x	y_1	y_2
3.5	349.55	349.55

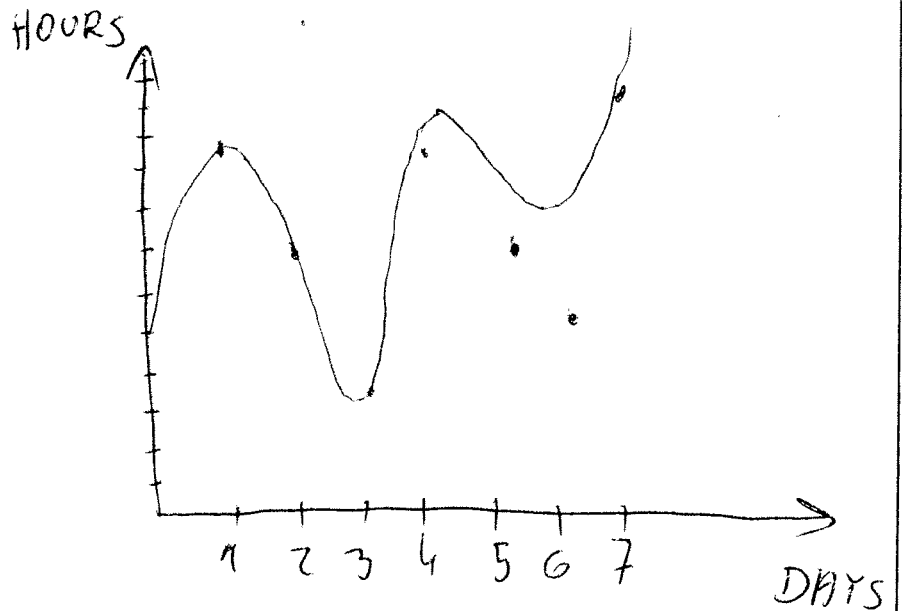
In 3.5 Years iPhone 4S Sales will be \$59.55.

<p>GROUP NAME: <u>Apple 2 Apple</u></p> <p>Logo:</p>	<p>Student Names (First and Last)</p> <p>Speaker/Presenter: <u>Steven H</u></p>
<p>Date: <u>09/09/13</u></p> <p>Topics:</p>	<p>Writer/Prep: <u>Anna S</u></p> <p>QC/Leader: <u>Anne S</u></p>

Instructions:

make a continuity

DAYS	HOURS
1	9.7
2	7.1
3	4.0
4	10.0
5	8.8
6	7.7
7	13.3



On day 4 we sleep 10 hours.

$$y_1 = \text{sin reg}$$

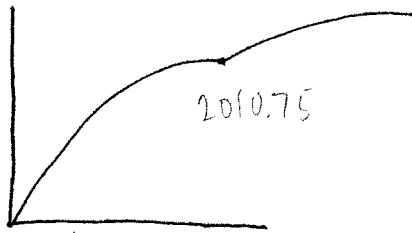
$$y_2 = \text{quart reg} + 2.557$$

$$y_1 = \frac{\text{sin reg}}{x \leq 4}$$

$$y_2 = \frac{\text{quart reg}}{(x \geq 4)} + 2.557$$

<p>GROUP NAME: <u>The Scientistos/as</u></p> <p>Logo:</p>	<p>Student Names (First and Last)</p> <p>Speaker/Presenter: <u>Dorin C.</u></p>
<p>Date: <u>9-9</u></p> <p>Topics:</p>	<p>Writer/Prep: <u>Kiersten Hendricksen</u></p> <p>QC/Leader: <u>Nicole Powell</u></p>

Instructions:



At 2010.75 $y = \begin{matrix} 872.22 \\ 868.19 \end{matrix}$

Add $\begin{matrix} 8.72 \\ 4.69 \end{matrix}$ to y_1

At the year 2010.75 there will be 872.22 animals

$$\begin{aligned} \cancel{873.94} &= \cancel{865.22} + 8.72 \\ 868.19 - 863.5 &= 4.69 \end{aligned}$$

$y_1 = \text{cubic}$

$y_2 = \text{quadratic}$

GROUP NAME: <u>CSC</u>	Student Names (First and Last)
Logo:	Speaker/Presenter: <u>Corneal Douglas</u>
Date: <u>9/9/13</u>	Writer/Prep: <u>COURTNEY GRUBB</u>
Topics:	QC/Leader: <u>STEPHEN SMITH</u>

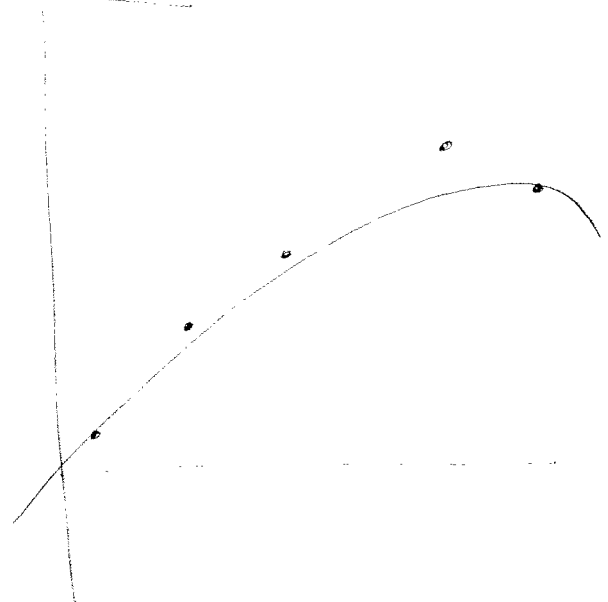
Instructions: Continuity

Data

<u>YR</u>	<u>PRICE</u>
2009	211.98
2010	336.12
2011	405.00
2012	532.17
2013	501.02

Chart


APPLE STOCK PRICES



<u>X</u>	<u>quadratic</u> <u>Y1</u>	<u>cubic</u> <u>Y2</u>
2011	433.3	433.3
2010	337.87	ERROR
2009	206.39	ERROR
2013	ERROR	505.75

as time increases to 2011 the price will increase to \$433.3 as it decreases to 2011 it will decrease to \$433.3 as we work with a margin of 0.000427

GROUP NAME: Irish Math Bombs

Logo: 

Date: _____

Topics: _____

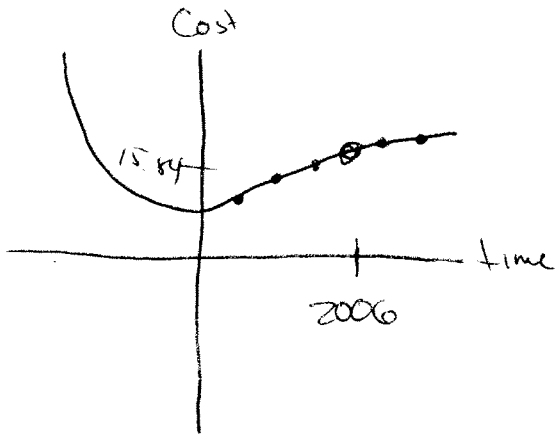
Student Names (First and Last)

Speaker/Presenter: Connor Krusman

Writer/Prep: Bobby O'Conner

QC/Leader: Bill Smith

Instructions:



As time increases from the left or to 2006, the price of pbr will cost \$15.84

As time decreases or go back in time to 2006, the price of pbr will cost \$15.84, given a margin of \$0.26



~~scribble~~

~~scribble~~

$$y_1 = -0.22 \dots \text{Quad} / (x \geq 6)$$

$$y_2 = -0.00810x^3 + .17 \dots x^2 + .2x / (x \leq 6) + .26$$

cubic