D G K

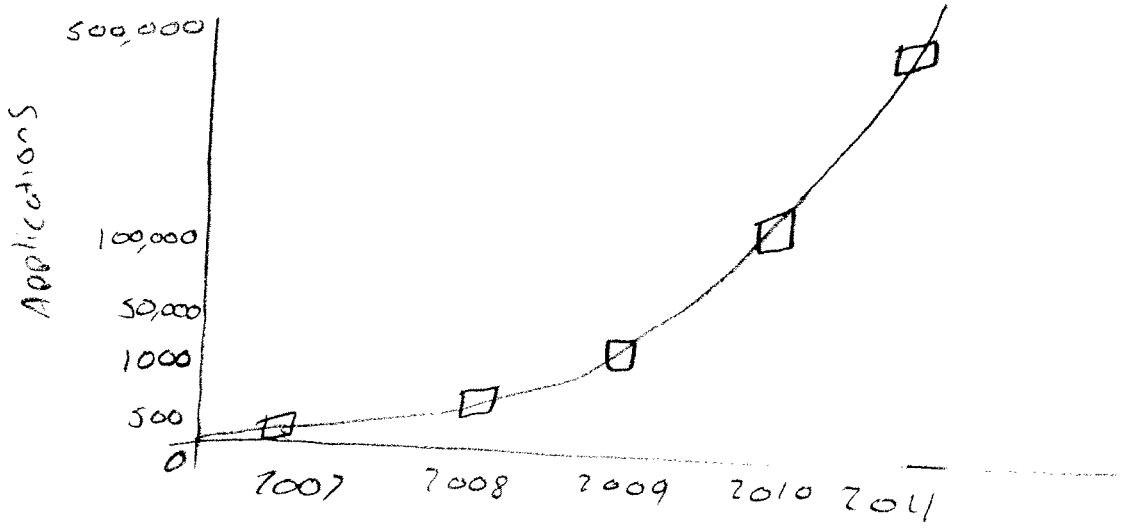
Ikcuin H
Abdullah

slope:

$y = 46121...x^2 - 18519...x + 18590$

Calc: $dy/dx \times 12,2410$

$x = 2009$



$m = \frac{500,000 - 500}{2011 - 2007}$

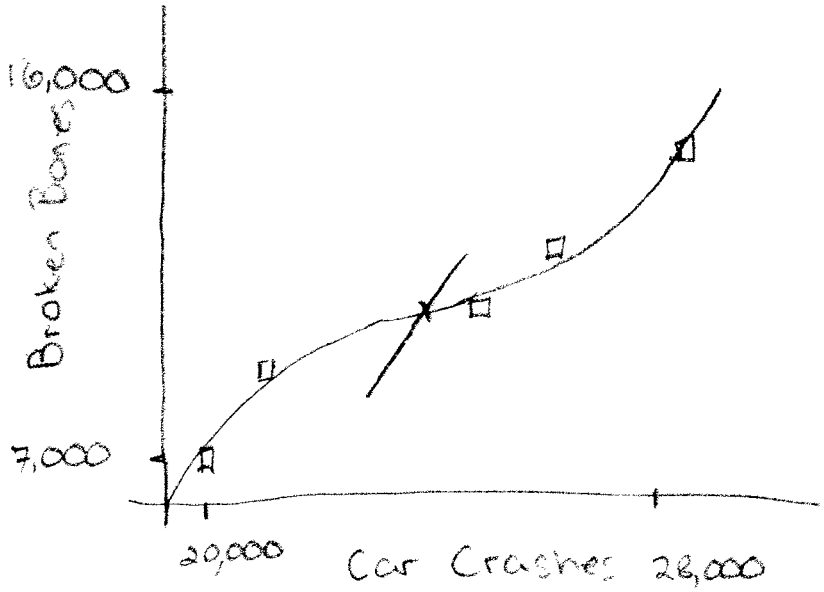
slope = 12,4875

x	y
400	2007
1000	2008
65,000	2009
225,000	2010
500,000	2011

Double Helix

Data:

car crashes per year	Broken bones per year
20,000	7000
21,000	9,000
25,000	12,000
26,000	14,000
28,000	16,000



Cubic Reg → enter data, plot

cubic Reg => $y = ax^3 + bx^2 + cx + d$

$y = 2.127\ldots x^3 - .0015\ldots x^2 + 3?.9?\ldots x - 306082\ldots$

Derivative -

calc => [2nd] [TRACE] [6]

$x = 24{,}000$

$dy/dx = .779\ldots$

Average rate of change -

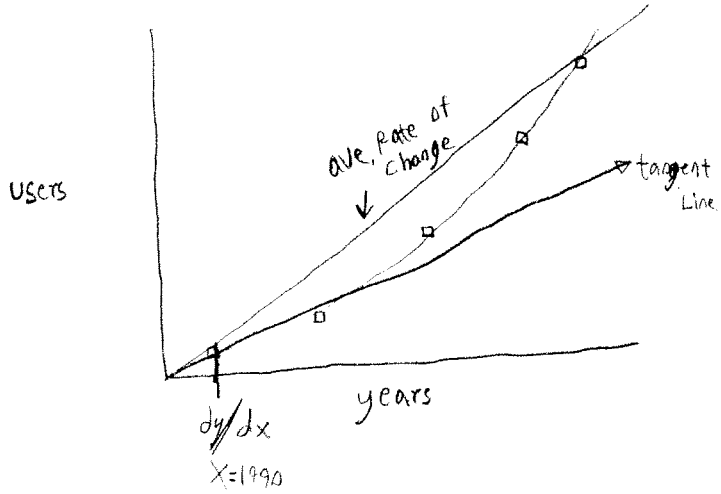
$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{(16{,}000 - 7{,}000)}{(28{,}000 - 20{,}000)}$$

$= 1.125$ broken bones / car crash

Years	Internet Users
1990	4 mil
1995	6 mil
2000	10 mil
2005	14 mil
2010	18 mil

Grayson Rogers

Ted Condo



average Rate .7 mil $\frac{\text{Internet users}}{\text{years}}$

dy/dx 491428500

M.A.T. FINISHERS

HIRO, JULIAN, JERALDINE

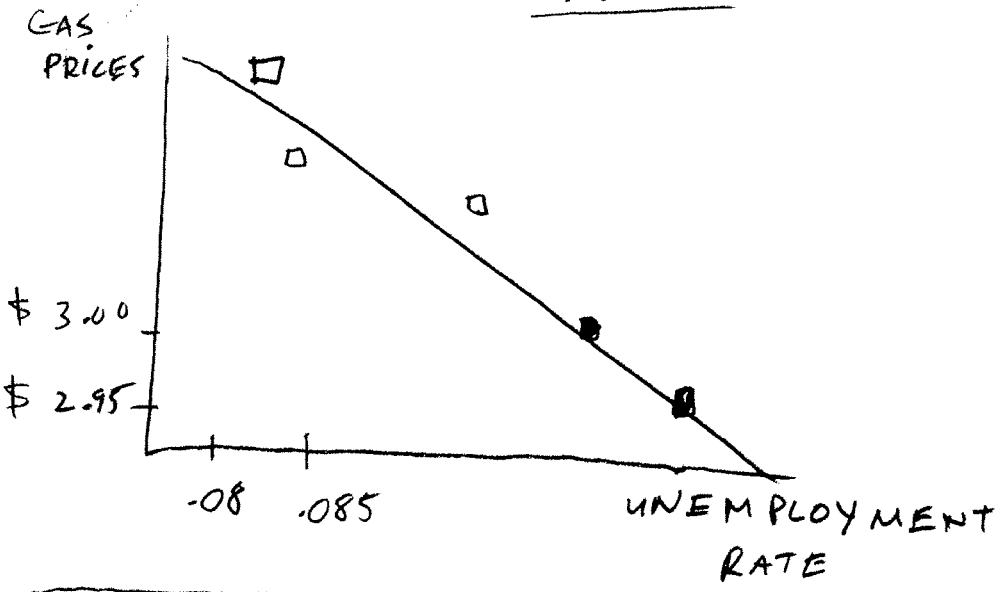
AVE RATE OF CHANGE: 6.778

$$\frac{\$3.50 - \$2.95}{.08 - .097} = 6.778 \quad \frac{\text{GAS RICE}}{\text{UNEMPLOY RATE}}$$

GRAPH

AT $X = 3$

$dy/dx = -.022645$



L1	L2
3.5	.08
3.35	.085
3.2	.09
3	.092
2.95	.097

Depending On Gas Prices / change in unemployment rate

deutsche produktion

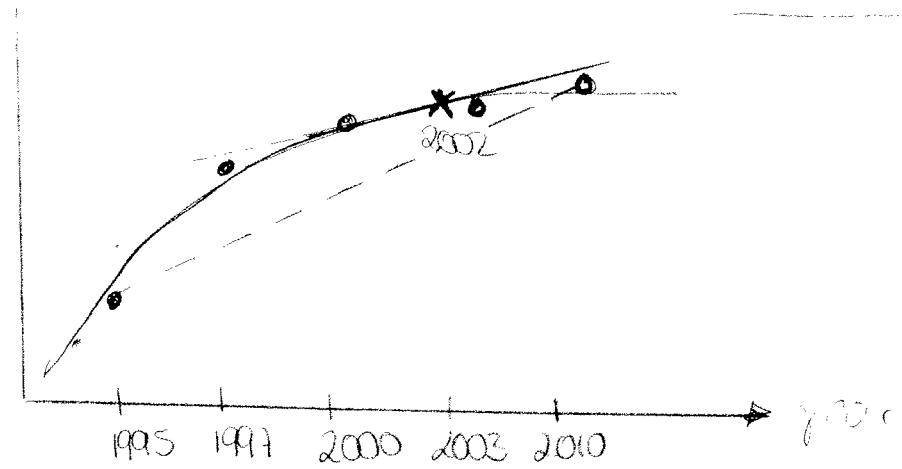
Data

year	train tickets in Euros (sale
1995	1,50€
1997	1,80€
2000	2,00€
2003	2,10€
2010	2,30€

average range of change:

$m = \frac{2{,}30€ - 1{,}50€}{2010 - 1995}$

$m = 0{,}0533...$ Euro/year



→ Quad. reg. = $y = ax^2 + bx + c$

$y = -0{,}0036...x^2 + 14{,}79102...x + (-14857{,}$
$1204...$

→ Derivative

$x = 2002$

$dx/dy = 0{,}0533...$

Counting Bases.

① Dung LE

② Christiana.CTRIS.com.

Data.

(X) month	$ (Y)
1	2022
2	1522
3	3022
4	3360
5	3500

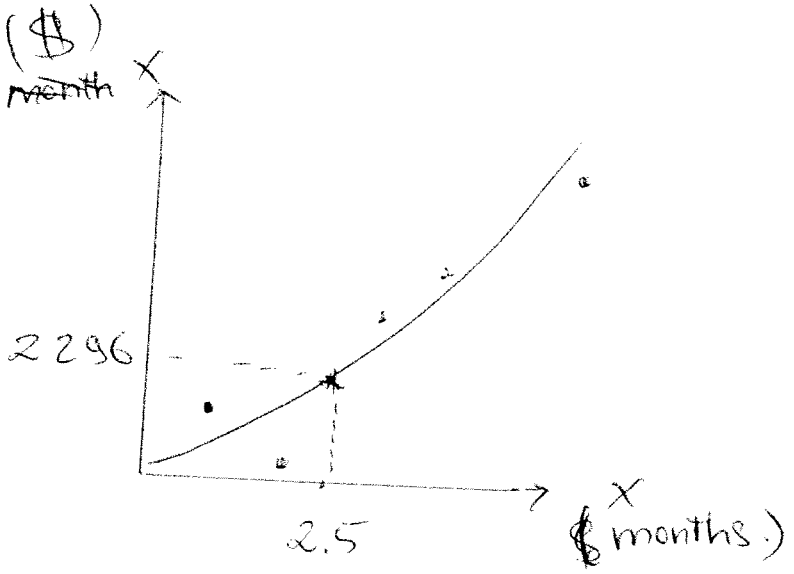
Slope of Tangent Line.

$Y_1 = 1428.2.. * 1.2..^X$.

Calc: 6 dy/dx.

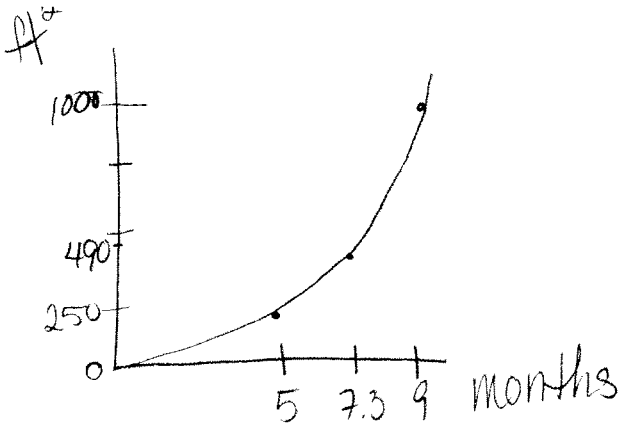
$X = 2.5$ $Y = 2296$.

$dy/dx = 438.98..$



X-mas in July

Benazir Rownaki
Ananda Suchil



In	Out
$1000 ft^2$	9 months
$490 ft^2$	7.3 months
$250 ft^2$	5 months

1. [Y=] (↑) <enter>
2. zoom → 9
3. stat → calc → 5 → enter
   $Y = 48.91... x^2 + -497.28... x + 1513.58...$
4. [Y=] → VARS → 5 → EQ → 1
5. stat → calc → 0 → enter
   $Y = 43.34... \cdot 1.409...^x$
6. [Y=] → VARS → 5 → EQ → 1

$$m = \frac{1000 - 250 ft^2}{9 - 5 \text{ months}} = \frac{750 ft}{4 \text{ month}} = 187\frac{1}{2} ft^2/\text{mths}$$

derivative

1. [Y=]
2. 2nd → calc
3. 6
4. $x = 7$

PURPLE PARROTS

(L1) year	gradrate (L2)
2005	78%
2006	73%
2007	84%
2008	84%
2009	90%

Turn plots on

Zoom / Stat [9] - plot data

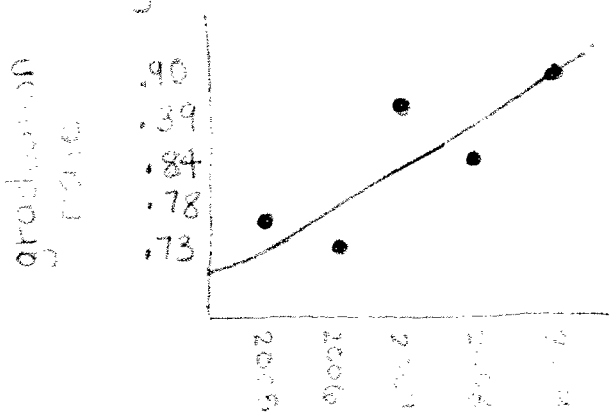
Find Regression

Stat > calc ∨ QuadReg [5]

$y = 7.4\ldots \times 10^{-4}x^2 - 2.83x + 2807.75$

graph

graph [y=] ∨ Stat [5] > EQ ∨ Reg EQ [ENTER]



$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{.90 - .78}{2009 - 2005} = \frac{.12}{4} \quad .03 \text{ or } 3\%/\text{year}$$

[y=] enter equation

[2nd] [trace] [6] ∨ dy/dx [6]

x = 2007

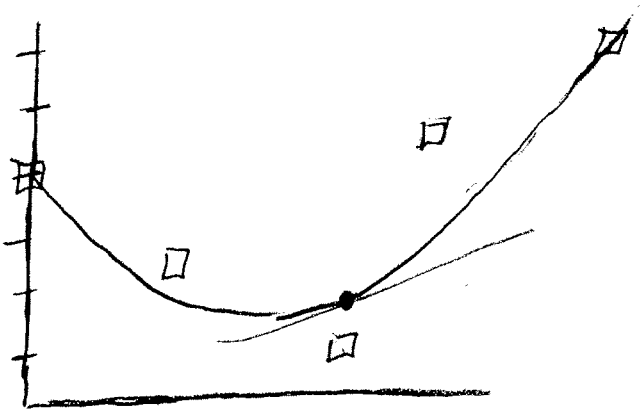
$m = 0.03\overline{4}\ldots$

$\approx 3.4\ldots\%$

INVESTMENT BANKER

- STEVEN BRUNS
- LUIS TINOCO

YEAR	REVENUE (MILLIONS)
1960 (0)	$ 9.26
1970 (10)	$ 7.47
1980 (20)	$ 6.18
1990 (30)	$ 9.29
2000 (40)	$ 11.73



X = 1980

Y = 6.949...

QUADRATIC FUNCTION

STEPS IN CALCULATOR:

1) [STAT] EDIT (INSERT DATA)

2) [Y=] PLOT 1 (ENTER)

3) [STAT] > CALC V 5: QUADREG

4) [Y=] [VARS] 5: STATISTICS >> EQ 1: REGEQ

a) $y = .0091...x^2 + -.2998...x + 9.2711...$

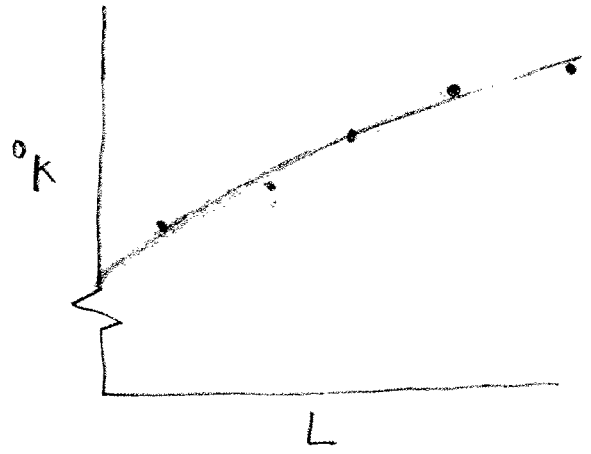
b) $\frac{\Delta Y}{\Delta X} = \frac{11.73 - 9.26}{2000 - 1960} = \frac{2.47}{40} = .06175$ OR $\$61,750$ $\frac{\text{MILLIONS}}{\text{YEARS}}$

c) [GRAPH] [2nd] [TRACE] 6: dY/dX [ENTER]

$dY/dX = .0676$ OR $\$67,600$ $\frac{\text{MILLIONS}}{\text{YEARS}}$

Abraham Sherman
Timothy Lukowicz

Input (amount of solute)	Output (temperature)
0.2 L	316°K
0.4 L	329°K
0.6 L	350°K
0.8 L	372°K
1.0 L	382°K



$y_1 = -8.929x^2 + 98.214x + 294.800$

$x = 0.5$

$y = 341.675$

$dy/dx =$

$\frac{382-316}{1.0-0.2} = \frac{68}{0.8}$

average rate of change = 85