

Anti-Derivative

Indefinite Integral

Notation

$$\int f'(x) dx = f(x) + C$$

$$\int f(x) dx = F(x) + C$$

$$f(x) \leftarrow F'(x)$$

Ex

$$\int e^x dx = e^x + C$$

Ex

$$\int \sinh(x) dx = \cosh(x) + C$$

$$\underline{\text{Ex}} \int \cosh(x) dx = \sinh(x) + C$$

$$\underline{\text{Ex}} \int \frac{1}{x} dx = \ln|x| + C$$

Domain
 $x \neq 0$

$$\underline{\text{Ex}} \int \cos(x) dx = \sin(x) + C$$

$$\underline{\text{Ex}} \int \sin(x) dx = -\cos(x) + C$$

$$\int \sec^2(x) dx = \tan(x) + C$$

Ex

$$\int x^n dx = \frac{x^{n+1}}{n+1} + C$$

$$\underline{\text{Ex}} \int x^5 dx = \frac{x^6}{6} + C$$

$$\underline{\text{Ex}} \int 6x^5 dx = x^6 + C$$

Ex $\int 3 dx = 3X + C$

Ex $\int X + 2 dx = \frac{X^2}{2} + 2X + C$

Ex $\int Ax^4 + Bx^3 + Cx^2 + Dx + E$
 $\downarrow \quad \downarrow \quad \downarrow \quad \downarrow$
 $Ax^5/5 + Bx^4/4 + Cx^3/3 + Dx^2/2 + E$
+ Constant

Fundamental Theorem of CALCULUS

$$\int_a^b f(x) dx = F(b) - F(a)$$

$$\int_0^2 4 - x^2 dx = \text{~~THE~~} F(2) - F(0)$$

$$F(x) = 4x - \frac{x^3}{3}$$

NOTATION.

$$\begin{aligned} \int_0^2 4 - x^2 dx &= \left. 4x - \frac{x^3}{3} \right|_0^2 \\ &= \left(\underset{f(2)}{4(2)} - \frac{(2)^3}{3} \right) - \left(\underset{f(0)}{4(0)} - \frac{0^3}{3} \right) \\ &= 8 - \frac{8}{3} = \frac{24-8}{3} = \frac{16}{3} = 5\frac{1}{3} \end{aligned}$$

$$\int_0^{30} \text{Quartic Regression } y_2 \, dx = F(30) - F(0)$$

$$y_1(30) - y_1(0) = 11696 \frac{2}{3}$$

(cont)

$$\text{Calc 7: } \int f(x) \, dx = 11696 \frac{2}{3}$$

Lower 0

Upper 30

Lady G made 11696 million

over 30 yrs

↓ ÷ 30

Aver = 389. million or Avg.

GROUP NAME: Money Maker

Date: 04/16/2014

Student Names (First and Last)

Speaker/Presenter: Bryan S

Writer/Prep: Edna - O

Independent Variable (x-axis): Year

Leader/Collaborator: Monica M

Dependant Variable (y-axis): Crime Rate

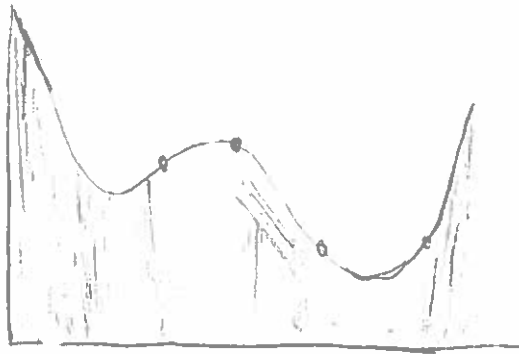
Conclusion (in words):

Supporting Work:

Get data #7

x	y
2009	0.75
2010	0.50
2011	0.57
2012	0.44
2013	0.31

(f(x) = 0.3x^2 + 0.4x + 0.7)



$$\begin{aligned}
 Y_1 &= \int_0^3 0.3x^2 + 0.4x + 0.7 \, dx = F(3) - F(0) \\
 &= 2.03
 \end{aligned}$$

GROUP NAME:

Date: 4/16/14 TI rates

Student Names (First and Last)

Speaker/Presenter: Shanon Psoe

Independent Variable (x-axis): time

Writer/Prep: Onur Turkan

Dependant Variable (y-axis): bachelor

Leader/Collaborator: Christina Trujillo

Conclusion (in words): At 11:45pm there will be 45.66% drunk bachelors at the bar

Supporting Work:

x	y
18	10
19	7
20	6
21	5
-	-
-	-
23:45	6

Quart Reg:

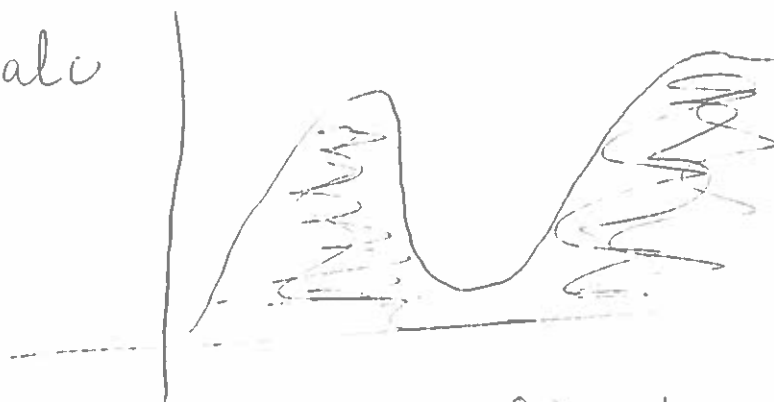
$$\int Ax^4 \dots$$

$$Ax^{5/5} + Bx^{4/4} + Cx^{3/3} + C$$

$$\int_{18}^{23.45} \text{Quad Reg. } dx = f(23.45) - f(18)$$

$$y_1(23.45) = y_1(18) = 45.6617 \dots$$

2nd calc
7



Lower limit 18 $\int f(x) dx = 45.6660$

Higher limit 23.45 23.45

GROUP NAME: Cha-Ching

Date: 4/16/14

Student Names (First and Last)

Speaker/Presenter: Sheila Mae Gan

Independent Variable (x-axis): Years

Writer/Prep: _____

Dependant Variable (y-axis): Revenue

Leader/Collaborator: Tatiana Calderon

Conclusion (in words): In the years 2009 - 2013 Cha-Ching club made a total of \$92,311,111

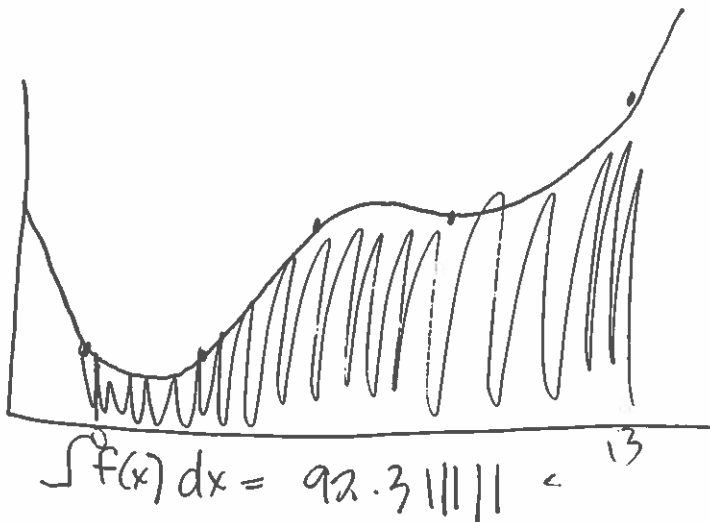
Supporting Work:

$$Y_1 = \int^3 \text{Quartic Regression } dx$$

$$Y_2 = \text{Quartic Regression}$$

l_1	l_2
13	35
12	27
11	26
10	17
9	6

$$Y_1(13) - Y_1(9) = 92.3111109 = \int_0^{13} \text{Quad Reg } dx$$



Calc 7:
 Lower: 9
 Upper: 13
 $\int f(x) dx$

GROUP NAME: W. A. K. S.

Student Names (First and Last)

Date: _____

Speaker/Presenter: Kausari

Independent Variable (x-axis): Years

Writer/Prep: _____

Dependant Variable (y-axis): Population

Leader/Collaborator: _____

Conclusion (in words):

Handwritten conclusion text, partially illegible.

Supporting Work:

2009	2.1
2010	2.3
2011	2.6
2012	2.4
2013	2.7

Handwritten equations and notes:

$$y = \text{Cubic Reg} = \dots x^3 + \dots x^2 + \dots x + \dots$$

$$y = \text{Quad Reg} = \dots x^2 + \dots x + \dots$$

Handwritten equations and notes:

$$y = \dots x^2 + \dots x + \dots$$

$$\dots = 9.74$$



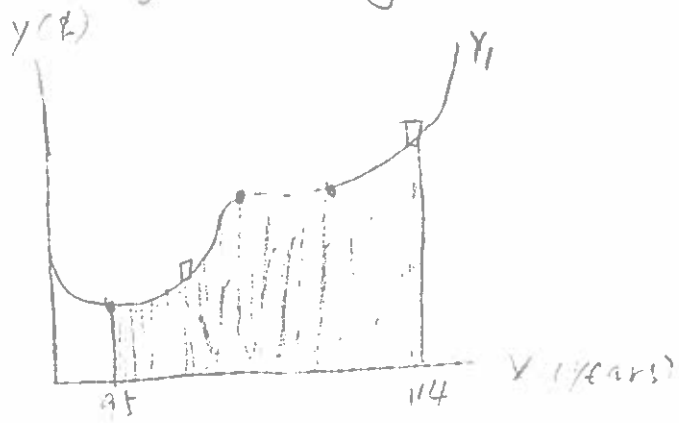
GROUP NAME: <u>11.11.11</u>	Student Names (First and Last)
Date: <u>4/16/14</u>	Speaker/Presenter: <u>Ryan Piotrowski</u>
Independent Variable (x-axis): <u>years</u>	Writer/Prep: <u>Bobq Bier</u>
Dependant Variable (y-axis): <u>gas price</u>	Leader/Collaborator: <u>Darvan Zhou</u>

Conclusion (in words): gas price from 1995 to 2014 total is 41.74 and the average per year is 2.19

Supporting Work:

x	y
95	1
100	1.54
105	2.5
112	3
114	4.2

$y_1 = \text{Ant (Price)}$
 $y_2 = \text{Gas (Price)}$



$\int_{95}^{114} f(x) dx = 41.74$

lower: 95 upper: 114

$y_1(114) - y_1(95) = 41.74$

$114 - 95 = 19$

$\frac{41.74}{19} = 2.19$

GROUP NAME:	Student Names (First and Last)
Date: <u>04/16/14</u>	Speaker/Presenter: <u>Nader Shenoula</u>
Independent Variable (x-axis): <u>time (hours)</u>	Writer/Prep: <u>Karol Zanti</u>
Dependant Variable (y-axis): <u>memory usage (MB)</u>	Leader/Collaborator: _____

Conclusion (in words): The total memory usage is 7786.666 MB ~~per~~ ~~hour~~ or an average usage of 1946.666 MB ~~per~~ ~~hour~~ ~~1537.333~~

Supporting Work:

x	y
0	1000
1	1500
2	2500
3	2250
4	2600

$$\int_0^4 \text{Quartic Regression } dx = F(4) - F(0)$$

$$y_2 = Ax^4 + Bx^3 + Cx^2 + Dx + E$$

$$y_1 = Ax^{\frac{5}{5}} + Bx^{\frac{4}{4}} + Cx^{\frac{3}{3}} + Dx^{\frac{2}{2}} + Ex$$

$$Y_1(4) - Y_1(0) = 7786.666$$

Calc 2nd trace

Avg = $\frac{7786.666}{4}$

lower: 0
upper: 4

= 1946.666

= 7786.666



GROUP NAME: BEST FRIENDS - ELLIOT

Student Names (First and Last)

Date: 4-16-2014



Speaker/Presenter: VINNIE AJHAD

Independent Variable (x-axis): YEAR

Writer/Prep: LAUREN DOBO

Dependent Variable (y-axis): SALES

Leader/Collaborator: _____

Conclusion (in words):

THE TOTAL SALES OF LULULEMON CARDS BETWEEN 2009 & 2013 WAS 4.3 MILLION
 THE AVERAGE AMOUNT OF CARDS SOLD PER YEAR WAS 1.075 MILLION

Supporting Work:

$$y_1 = \int_{2009}^{2013} Ax^3 + Bx^2 + Cx + D \left| \frac{Ax^4}{4} + \frac{Bx^3}{3} + \frac{Cx^2}{2} + Dx \right.$$

$$y_2 = Ax^3 + Bx^2 + Cx + D$$

$$y_1(2013) - y_1(2009) = 14.3$$

$$\int f(x) dx = 14.422712$$

