

Antiderivatie
Indefinite Integral

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

$$(F(x) + C)' = f(x)$$

$$x^2 + C = \int 2x dx$$

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

$$\sin x + C = \int \cos x dx$$

$$-\cos x + C = \int \sin x dx$$

Power Rule
for
Integrals

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

$n \neq -1$

$$\frac{d}{dx} \frac{x^{10}}{10} = \frac{10x^9}{10}$$

Ex

$$\int x^4 + 3x^2 + x^{1/2} + x^{-4} dx$$

$$\frac{x^5}{5} + \frac{x^3}{3} + \frac{x^{3/2}}{3/2} + \frac{x^{-3}}{-3} + C$$

$$\frac{x^5}{5} + x^3 + 2 \frac{x^{3/2}}{3} - \frac{1}{3x^3} + C$$

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

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

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

$$\text{Constant} \cdot x + C = \int \text{constant} dx$$

EX $\int 3 dx = 3x + C$

$$\text{constant} \int f(x) = \int \text{constant} f'(x) dx$$

$$\int \text{constant} f(x) dx = \text{constant} \int f(x) dx$$

EX $\int 8 \cos x - 66 dx$

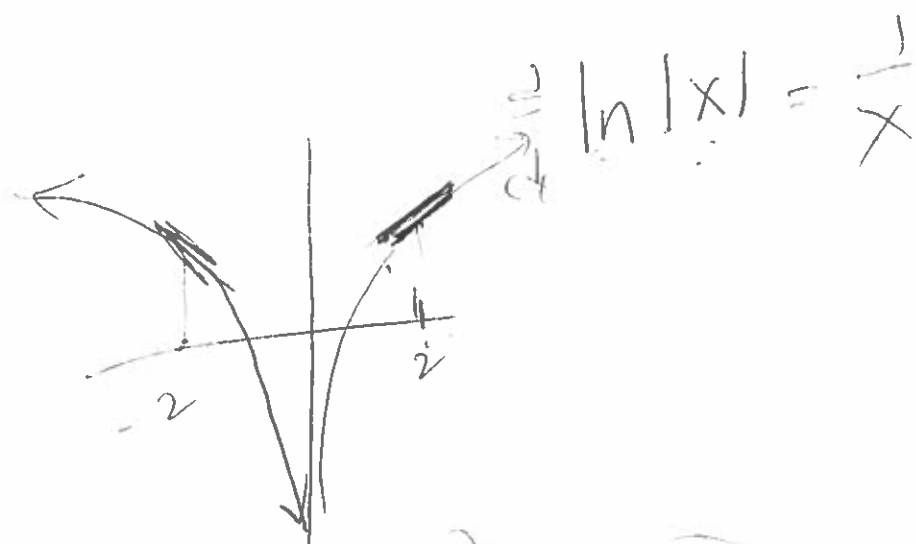
$$\int 8 \cos x dx - \int 66 dx$$

$$8 \int \cos x dx - 66x + C$$

$$8 \sin x - 66x + C$$

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

↑
↑
 Domain $x \neq 0$



Quartic Regression

$$y = \cancel{Ax^4} + Bx^4 + Cx^3 + Dx^2 + Ex + F$$

Ex

$$y_1 = 3x^4 - 5x^3 + 7x^2 + 10x + 8$$

$$\int y_1 dx = \frac{1}{2} = \frac{3x^5}{5} - \frac{5x^4}{4} + \frac{7x^3}{3} + \frac{10x^2}{2} + 8x$$

(11)

Fundamental Theorem of Calculus

$$\int_a^b f(x) dx$$

Area under
curve $f(x)$
between a & b

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

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

Ex

$$\int_0^2 4 - x^2 dx = 4x - \frac{x^3}{3} \Big|_0^2$$

$$\left(4(2) - \frac{(2)^3}{3} \right) - \left(4(0) - \frac{(0)^3}{3} \right) = 8 - \frac{8}{3}$$

$$F(2) - F(0) = 5\frac{1}{3}$$

$$Y_1 = \text{Quad Reg.}$$

$$Y_2 = \int Y_1 dx$$

Calc 7: $\int f(x) dx$

Lower : 0

Upper : 30

$\int f(x) dx = 11730$



$$Y_2(30) - Y_2(0) = \underline{11730}$$

VARs $\textcircled{>}$ ~~Formula~~ $\textcircled{\checkmark}$ Y_2

Words " Lady G. betwee 0 & 30 yrs
mid 11,730 millio dollars

OR $\frac{11730}{30} =$ Ave. Lady G
worth 15
\$390/

GROUP NAME: 1 Science

Student Names (First and Last) _____

Date: 17 APR 14

Speaker/Presenter: Connor

Independent Variable (x-axis): Time (hrs)

Writer/Prep: Leidy

Dependant Variable (y-axis): Concentration (PPM)

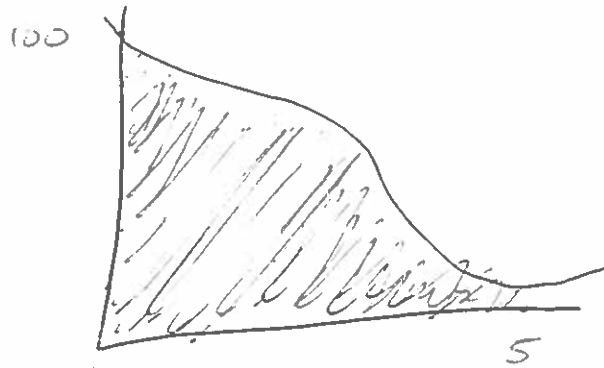
Leader/Collaborator: _____

Conclusion (in words):

Average PPM is 55.434 over 5 hours

Supporting Work:

hrs	PPM
0	100
1	80
2	75
3	45
4	25
5	10



lower 0

Upper ~~5~~ 5

$$\int f(x) dx = 277.17014$$

$$Y_2(5) - Y_2(0) = 277.1701389$$

$$\frac{277.1701389}{5} = 55.434$$

GROUP NAME: I ♥ SHOES

Student Names (First and Last)

Date: 4/17

Speaker/Presenter: W. M. C.

Independent Variable (x-axis): YEARS

Writer/Prep: Dominique C.

Dependant Variable (y-axis): Shoes sold

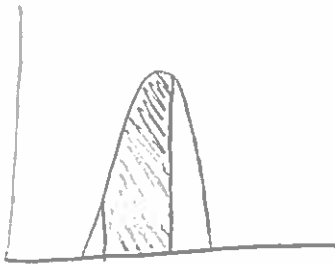
Leader/Collaborator: _____

Conclusion (in words): Every 14 years we sell ⁹⁰⁸⁸~~161.8~~ pairs of shoes ppm.

Supporting Work: QUADRATIC REGRESSION

$$Y_2(94) - Y_2(80) = 161.8033918$$

$$\int f(x) dx = 9088.4304 \text{ ppmh parts per million hr}$$



GROUP NAME:

Date: 4/17/14

Student Names (First and Last)

Speaker/Presenter: Ryan

Independent Variable (x-axis): World cups

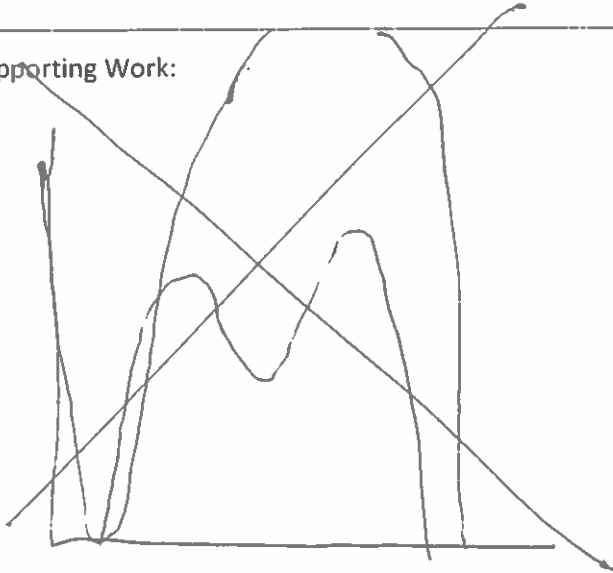
Writer/Prep: Andy

Dependant Variable (y-axis): goals

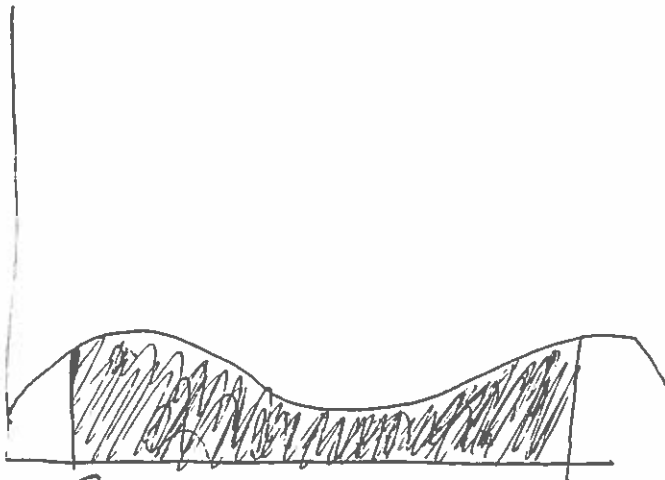
Leader/Collaborator: _____

Conclusion (in words): ~~to~~ Between the first and fifth world cups 160.26667 goals were scored

Supporting Work:



1	35
2	39
3	31
4	45
5	43



$$y_2(5) - y_2(1)$$

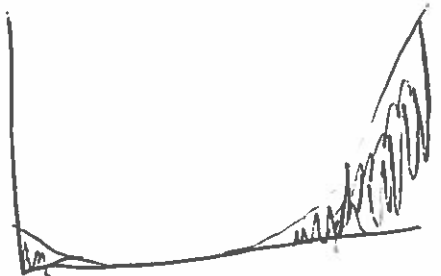
$$\underline{160.2666667}$$

$$\int f(x) dx = \underline{160.26667}$$

<p>GROUP NAME: <u>3 - 1 Guys</u></p> <p>Date: <u>17 APR 14</u></p>	<p>Student Names (First and Last)</p> <p>Speaker/Presenter: <u>Greg McHenry²</u></p>
<p>Independent Variable (x-axis): <u>Subaru's profit per year</u></p> <p>Dependent Variable (y-axis): <u>year</u></p>	<p>Writer/Prep: <u>Greg McHenry</u></p> <p>Leader/Collaborator: <u>Harrison Sander</u></p>

Conclusion (in words): ~~Every year 345.65~~ Greg 8 years Subaru sells 345.65×1000 Subarus per month

Supporting Work: $\int f(x) dx = 345.65$ lower 6 upper 14



$y_2(14) - y_2(6) = \text{shaded area} = 345.65$

GROUP NAME: Squiggles & Us

Date: 4/17/14

Student Names (First and Last)

Speaker/Presenter: Kevin V

Writer/Prep: Anik Patel

Leader/Collaborator: Kevin Jones

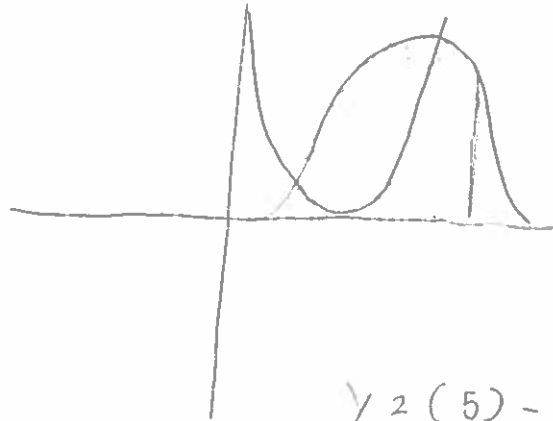
Independent Variable (x-axis): hours of work

Dependant Variable (y-axis): liters of soda drunk

Conclusion (in words): Every 5 hours 136.93 liters of
Tequila is consumed

Supporting Work:

X	Y
1	2
2	15
3	45
4	55
5	35



$$\int_1^5 f(x) dx = 136.93$$

$$y_2(5) - y_1(1) = 136.93$$