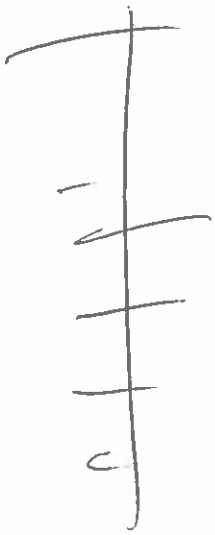
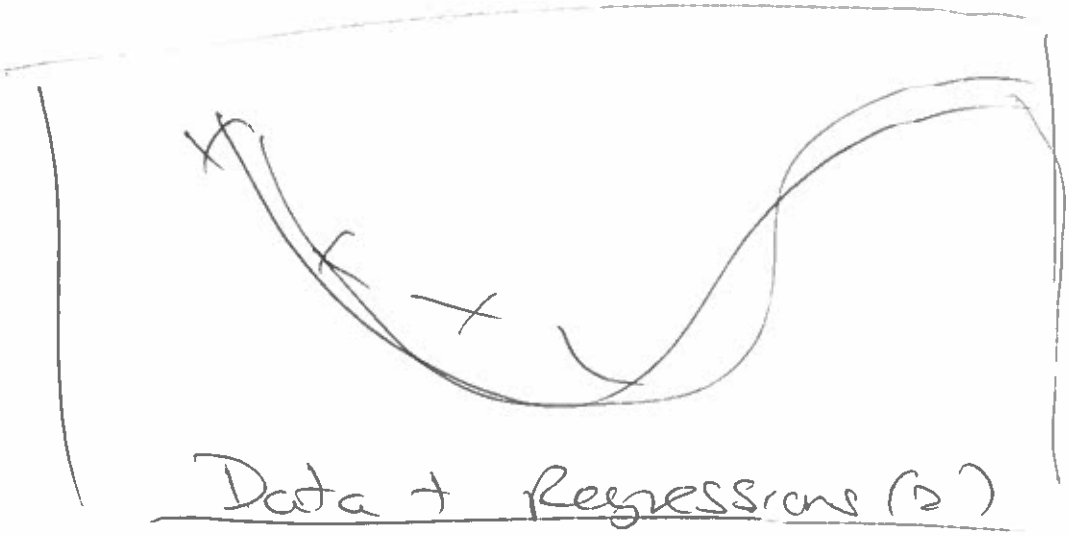
Calculus Poster

Date

Intro





Data + Regressions (2)

Predictors

Limit

End Behavior

or

$\lim_{x \to a} f(x) = \#$

prediction

Deriv.

Rate of change

or

Max/Min

Integral

Total Amount

or

Ave. Value

CONCLUSION:

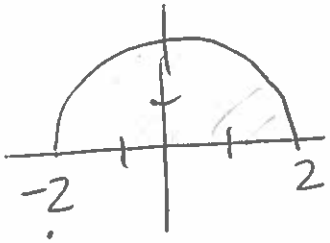
Area Under a Curve

Notation

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

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

EX $$\int_{-2}^{2} \sqrt{4-x^2}\,dx = 2\pi$$



$A = \pi r^2$

$A(2) = 4\pi$

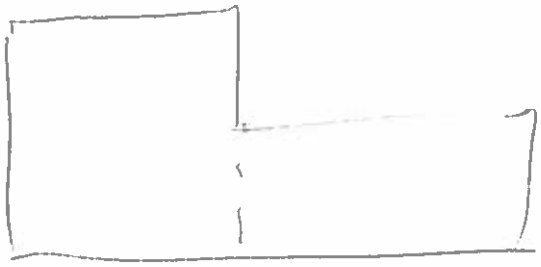
$Y_1 = \sqrt{(4 - X^2)}$

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

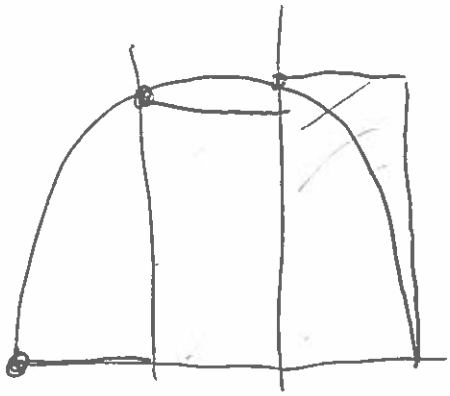
Lower: -2

Upper: 2

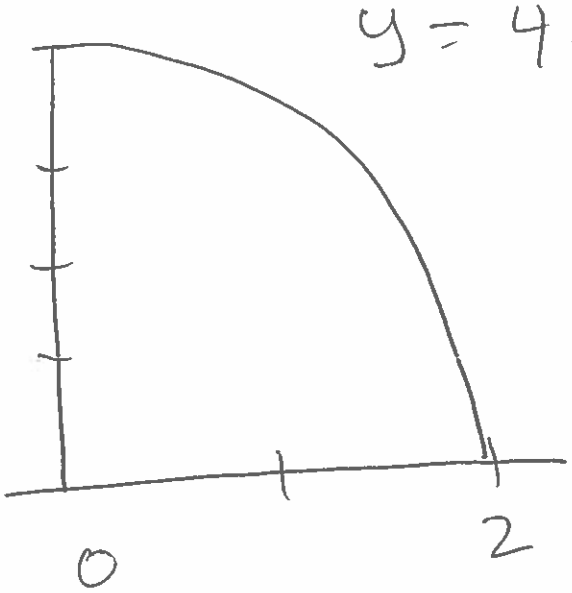
$\int f(x)\,dx = 6.28\ldots$



Right-sided Rectangles

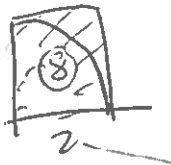


$y = 4 - x^2$ $b = 2$ $a = 0$



No. of Rectangles — Side

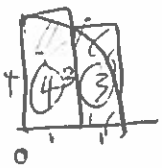
$n = 1$ Left $A \approx 8$



$f(0) = 4$

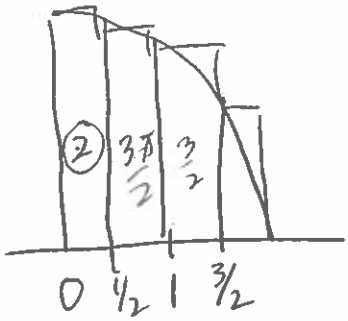
$\Delta x = \frac{b-a}{n}$

$n = 2$ Left $A \approx 7$



$f(0) = 4$ $f(1) = 4 - 1^2 = 3$

$n = 4$ Left $A \approx 6.25$



$\frac{1}{2}$ 12.50

6.28

$\frac{1}{2}[f(0) + f(1/2) + f(1) + f(3/2)]$

$\frac{1}{2}$ = width; $f(0) + f(1/2) + f(1) + f(3/2)$ = All The Heights

List = 2nd STAT

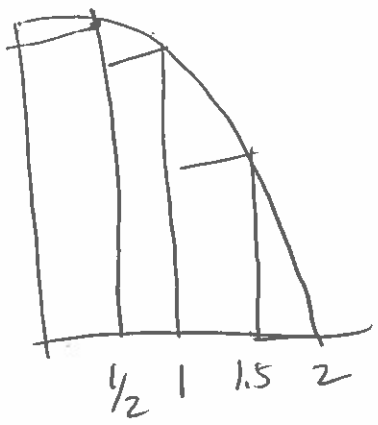
Sum = List ▷ ▷ 5 sum

Seq = List ▷ 5: seq

sum (seq (Y1 , X, 0 , 3/2 , 1/2)) * 1/2

Y1 = Function; 0 = START; 3/2 = END; 1/2 = Δx; 1/2 = Δx

Right Side



4.25 = Sum(seq(Y1,X,0,1.5,.5)*.5

n = 100 Rectangles (Left)

Sum(seq(Y1,X,0,1.98,.02))*.02 = 5.37

END = 2 − ΔX

2 − .02

1.98

$\Delta X = \frac{2-0}{100} = .02$

GROUP NAME: WHO

Date: 4/10

Student Names (First and Last)

Speaker/Presenter: Kathleen

Writer/Prep: Jenna Giarofalo

Leader/Collaborator:

Independant Variable (x-axis): Years

Dependant Variable (y-axis): Steroid in food in Babies (ppm)

Conclusion (in words):
Over just 12 years your baby is exposed to 1764ppm of steroids through the food you're feeding them!

Supporting Work:

y1	y2
0.01	122
3	100
6	143
9	200
12	170

CUBIC REG
$y = ax^3 + bx^2 + cx + d$
$a = -0.47\ldots$
$b = 8.45\ldots$
$c = -29.74\ldots$
$d = 123.01\ldots$

n=5
Start = 0.01
End = 12

$\Delta x = \frac{12 - 0.01}{5} = \frac{11.99}{5} = 2.398 \approx 2.4$

Sum(seq(Y1, X, 0.01, 12, 2.4)) * 2.4 = 1708.463281

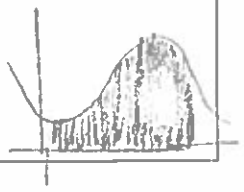
n=# rectangles
n = 100
Start = 0.01
end = 12

$\Delta x = \frac{12 - 0.01}{100} = 0.1199$

Sum(seq(Y1, X, 0.01, 12, 0.1199) * 0.1199 = 1781.87179

2nd calc 7:
lower = 0.01
upper = 12

$\int f(x)dx = 1764.2216$



GROUP NAME: W.H.O.

Date: 4/10/14

Student Names (First and Last)

Speaker/Presenter: Mike

Writer/Prep: Charlas

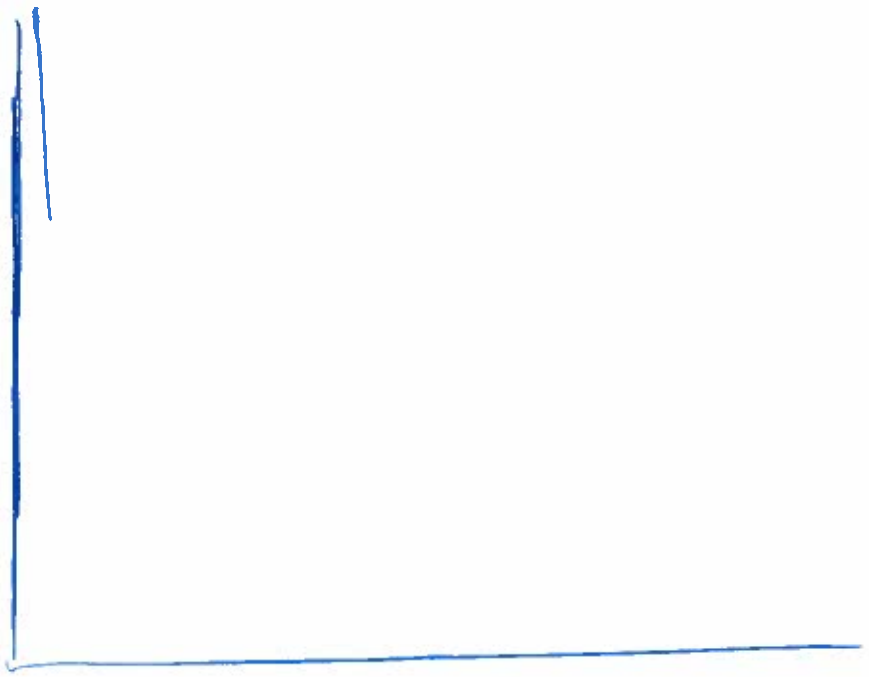
Leader/Collaborator: Cathryn

Independant Variable (x-axis): years

Dependant Variable (y-axis): steroid levels in ppm

Conclusion (in words): On ave. we only konsume 148.24 ppm/year.

Supporting Work:



sum(seq(Y1, X, 0.01, 11.8801, 0.1199)) * .1199

$= \frac{1777.395 \text{ ppm}}{12 \text{ year}}$

$= 148.24 \text{ ppm/year}$

GROUP NAME: Fluffy pony

Date: 4/10/ 2014.

Student Names (First and Last)

Speaker/Presenter: ~~Ahmed~~ & June

Writer/Prep: Ahmed & June

Leader/Collaborator: Tyler

Independant Variable (x-axis): Income

Dependant Variable (y-axis): Crime rate

Conclusion (in words):

The Av. crime rate for people of incomes between 20 and 100 is .2775 per #1000

Supporting Work:

From 20 → 100

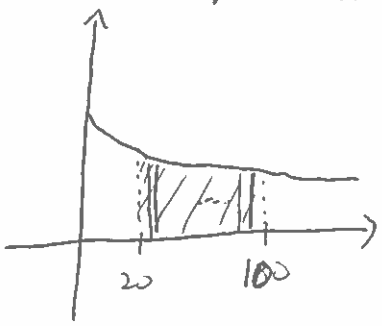
~~80~~ rectangles from the left.

80

Sum(seq(Y1, X, 20, ~~100~~ 99, 1)*1 = 22.~~#1963...~~ 2015...

Ans/80 = ~~.2802...~~

= .2775...



GROUP NAME: P. minions

Date: 4/10/14

Student Names (First and Last)

Speaker/Presenter: Kero

Writer/Prep: Jenn

Leader/Collaborator: Jason

Independant Variable (x-axis): years

Dependant Variable (y-axis): tuition $

Conclusion (in words):

Supporting Work: quartic

$y_1 = -2.041... \times 14 + 97.916... \times 13 + -1733.958... \times 12 + 13477.083...X + -35573.999...$

$\Delta x = \frac{14-10}{10} = .4$ end x

$14 - .4 = 13.60$

sum(seq(y_1, x, 10, 13.60, .4))*.4

$= 13379.43...$

GROUP NAME:

Date: 4/10/14

Student Names (First and Last)

Speaker/Presenter: Dallon

Writer/Prep: Daniella S.

Leader/Collaborator: Jason

Independant Variable (x-axis): Years

Dependant Variable (y-axis): $

Conclusion (in words):

Supporting Work:

$\text{Sum}[\text{seq}(Y_1, X, 10, 13.96, .04)] * .04 = 13,414.12$

$\Delta x = \frac{14-10}{100} = .04$

Quartic

$y_1 = -2.041...x^4 + 97.916...x^3 + (-1733.958...x^2) + 13477.053...x + (-35573.999...)$

GROUP NAME: Fluffy Ponies

Date: 4/10/14

Student Names (First and Last)

Speaker/Presenter: Milton / Ahmed

Writer/Prep: Courtney

Leader/Collaborator: Tyler / June

Independant Variable (x-axis): Income $$$

Dependant Variable (y-axis): Crime rate

Conclusion (in words):

The average crime rate for people with income between 20 and 100K is .233... ~~.23358...~~ ~~.2340$...~~ for $1000

Supporting Work:

- quartic regression

sum(seq(4, 1, X, 21, 100, 1) * 1 = 18.6467...

~~18.7267...~~

~~18.7267...~~ / 80 = ~~.23358...~~ ~~.2340$...~~

18.6467... / 80 = .233...