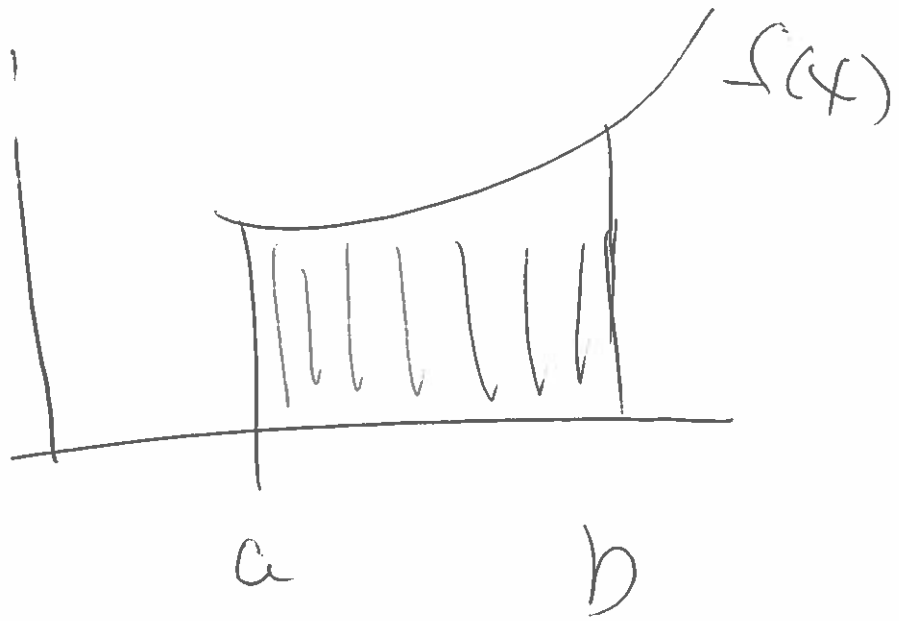
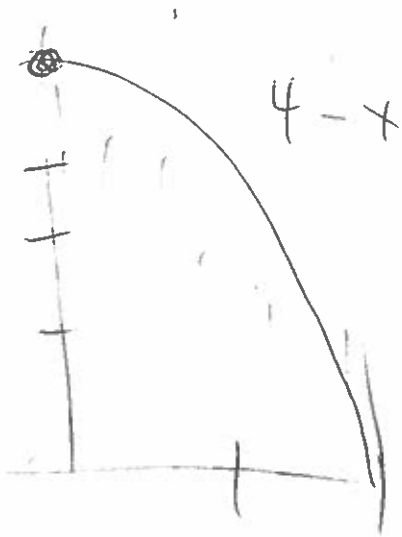


Definite Integral

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



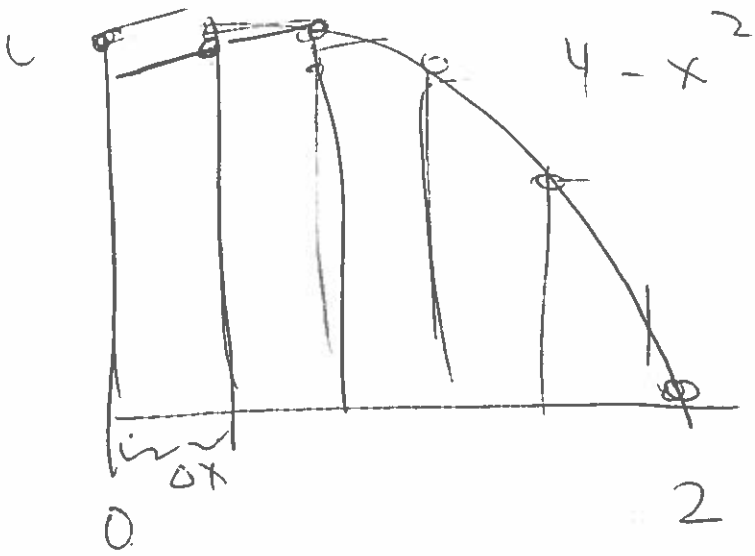
$$\int_0^2 4-x^2\,dx$$

n = 4 rectangles

$f(0) = 4$

$[f(0)] \cdot \text{width}$

$A(1) \approx 4 \cdot 2 =$



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

$$= \frac{2-0}{5}$$

Left s.d.

$$A(s) = \left[f(0) + f(0+2/5) + f(0+2/5 \cdot 2) + f(0+2/5 \cdot 3) \right.$$

$$\left. \cdots + f(0+2/5 \cdot 4) \right] \Delta x$$

Right

$$A(s) \left[f(0+2/5) + \cdots f(0+2/5 \cdot 5) \right] \Delta$$

$A(n) = ??$

Right

$\text{sum}(\text{seq}(4-x^2, x, 2/5, 2, 2/5))\cdot 2/5$

START END Δx

$a+\Delta x$ b

$A_R(5) = 4.48$

$A_R(200) =$

$\text{Sum}(\text{seq}(4-x^2, x, .01, 2, .01))*.01$

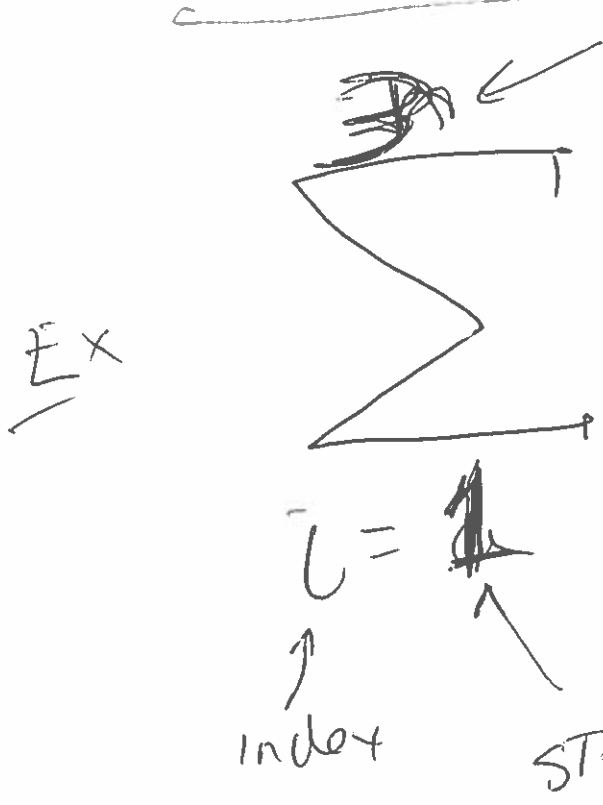
$= 5.313\ldots$

$\infty \cdot \frac{2}{\infty}$

Area under the Curve

$\lim_{n\to\infty} A_R(n) = \text{Area}$

Sigma or Summation Notation



Ex $\sum_{i=1}^{3} 2i + 5 = 27$

START $i = 1$ $\quad i = 2$ $\quad$ END $i = 3$

$2(1) + 5 \quad + \quad 2(2) + 5 \quad + \quad 2(3) + 5$

$7 \quad + \quad 9 \quad + \quad 11$

$$\sum_{i=1}^{n} (\text{constant}) = \text{constant} \times n$$

$$\sum A + B$$

$$\sum A + \sum B$$

Also

$$\sum 2i = 2\sum i$$

$$\sum 2i + 5$$

$$2\sum_{i=1}^{3} i + \sum_{i=1}^{3} 5$$

5×3

$$2\sum_{i=1}^{3} i + 15$$

$$\underbrace{1+2+3+4}_{} = 10$$

$$\underbrace{1+\underbrace{2+3+\cdots+98+99}+100}$$

$$\sum_{i=1}^{n} i = (1+n)\left(\frac{n}{2}\right)$$

$100 \cdot 50 = 5050$

$$\sum_{i=1}^{n} i^2 = \frac{n(n+1)(2n+1)}{6}$$

$3x^2 - 5x + 2$

1.32 1.52 - - 4.32

$\Delta x = .2$

$a + \Delta x = 1.32$

$a = 1.12$

$1.12 + .2 \quad 1.12 + 2(.2) + 1.12 + 3(.2)$

$1.12 + n(.2) = 4.32$
-1.12

$.2n = 3.2$

$n = 3.2/.2 = 16$

$$\sum_{i=1}^{16} 3(1.12 + .2i)^2 - 5(1.12 + .2i) + 2$$

$$3\left(\underset{1.25}{1.12^2} + .224i + .04i^2\right) - 5(1.12 + .2i) + i$$

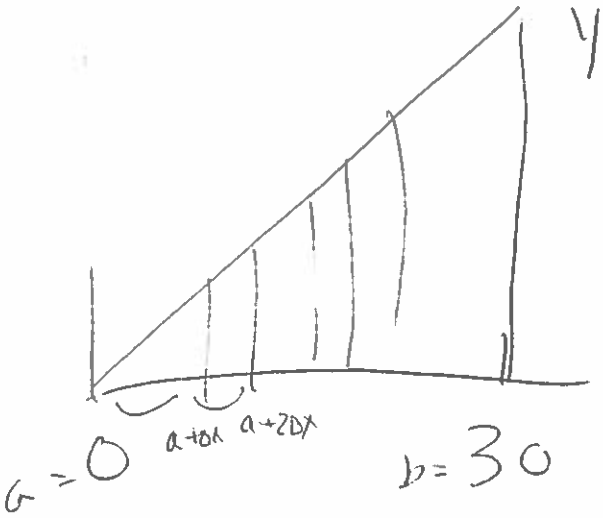
$$3.7632 + .672i + .12i^2 - 5.6 - i + 2$$

$$\sum_{i=1}^{16} .12i^2 - .328i + 5.7632$$

$$.12\sum_{i=1}^{16} i^2 - .328\sum_{i=1}^{16} i + 5.7632 \cdot 16$$

$$.12\left(\frac{16 \cdot 17 \; 33}{6}\right) - .328\left(\frac{16}{2} \cdot 17\right) + 5.76 \cdot 16$$

$$=$$



$y = Ax + B$

$y = 22.9x + 40$

$A \qquad B$

$\Delta X = \frac{b-a}{n} = \frac{30}{n}$

$$A(n) = \left(\sum_{i=1}^{n} 22.9\left(0 + \frac{30}{n} i\right) + 40 \right) \cdot \frac{30}{n}$$

A ; $a + \Delta x \, i$; B ; Δx

$$= \left(\sum_{i=1}^{n} 22.9 \cdot 0 + \frac{687}{n} i + 40 \right) \frac{30}{n}$$

$$\left[\frac{6,87}{n} \sum_{i=1}^{n} i + 40 \cdot n \right] \frac{30}{n}$$

$\sum_{i=1}^{n} i = \frac{n \cdot (n+1)}{2}$; $\sum_{i=1}^{n} 40 = 40n$

$$\left[\frac{6,87}{n} \frac{n \cdot (n+1)}{2} + 40n \right] \frac{30}{n}$$

$$A(n) = 10,305 \frac{(n+1)}{n} + 1200$$

Exact amt

$$\lim_{n \to \infty} A(n) = 10305 + 1200$$

$$= \cancel{130305}$$

$$11,305$$

GROUP NAME: Squids R Us

Date: 4/15/14

Student Names (First and Last)

Speaker/Presenter: Kevin V

Writer/Prep: Ariel [illegible]

Leader/Collaborator: Kevin [illegible]

Independant Variable (x-axis): hours of party

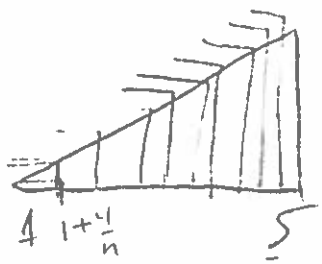
Dependant Variable (y-axis): liters of vodka drank

Conclusion (in words): 124 liters of vodka consumed from hour 1 - 5

Supporting Work:

X	Y
1	5
2	15
3	25
4	35
5	35

$y = 10x + 1$



$\Delta x = \frac{B-A}{n} = \frac{4}{n} = \frac{4}{n}$

$(10(0+\frac{4}{n})+1)\frac{4}{n}$

$\Delta x = \frac{5-1}{n} = \frac{4}{n}$

$A = 10$

$B = 1$

$$\left(\sum_{i=1}^{n} 10\left(1+\frac{4i}{n}\right)+1\right)\frac{4}{n}\,\Delta x$$

$$\left(\sum_{i=1}^{n} 10+\frac{40}{n}i+1\right)\frac{4}{n}$$

$$\left(\sum \frac{40}{n}i+\sum_{i=1}^{n} 11\right)\frac{4}{n}$$

$$\left(\frac{40}{n}\frac{n(n+1)}{2}+11n\right)\frac{4}{n}$$

$A(n) = \frac{80(n+1)}{n}+44$

$A(1) = 204$

$A(10) = 132$

$A(\infty) = 124$

GROUP NAME: I ♡ Shoes

Date: 4/15

Student Names (First and Last)

Speaker/Presenter: Val

Writer/Prep: DOMINIQUE CARNEY

Leader/Collaborator:

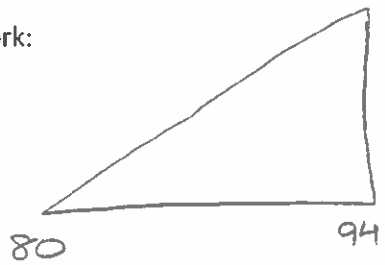
Independant Variable (x-axis): YEARS

Dependant Variable (y-axis): SHOE SALE

Conclusion (in words):

The shoe sale [illegible] area [illegible] 13.037.

Supporting Work:



$y = ax + b$

$y = 11.2x - 339.4$

$\Delta x = \frac{B-A}{n} = \frac{14}{n}$

$$A(n) = \sum_{i=n}^{n} \left(11.2\left(80 + \frac{14}{n}i\right) - 339.4 \right) \cdot \left(\frac{14}{n}\right)$$

$$\left(\sum_{i=1}^{n} 896 + \frac{156.8}{n} i - 339.4 \right) \frac{14}{n}$$

$$= \frac{156.8}{n} i + 5566$$

$$\frac{156.8}{n} \cdot \frac{n(n+1)}{2} \cdot \frac{14}{n} + 5566n \cdot \frac{14}{n}$$

$$A(n) = \frac{(n+1)}{n} 1097.6 + 77924 =$$

$$\lim_{n \to \infty} = 18768 \approx \int_{80}^{94} \text{Line Eq}$$

GROUP NAME: El Business

Date: 4/15/14

Student Names (First and Last)

Speaker/Presenter: Ryan

Writer/Prep: Brittany

Leader/Collaborator: Andy

Independant Variable (x-axis): years

Dependant Variable (y-axis): goals scored

Conclusion (in words): Total of 187.5 goals scored in 5 years

Supporting Work:

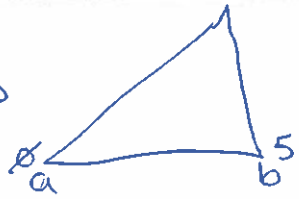
$y = Ax + B$

$A = 2.2$

$B = 32$

$\Delta x = \frac{5-0}{n}$

$\Delta x = \frac{5}{n}$



$$A(n) = \left(\sum_{i=1}^{n} 2.2\left(0 + \frac{5}{n}i\right) + 32 \right) \frac{5}{n}$$

$$= \sum \left(2.2\left(\frac{5}{n}i\right) + 32\right)\frac{5}{n}$$

$$\left(\frac{11}{n} \sum_{i=1}^{n} i + 32n\right)\frac{5}{n}$$

$$A(n) = \frac{11}{n}(1+n)\left(\frac{n}{2}\right)\cdot\frac{5}{n} + 32\cdot 5$$

$$A(n) = 27.5\left(\frac{n+1}{n}\right) + 160$$

$$\lim_{n\to\infty} A(n) = 27.5 + 160 = 187.5$$

2nd Calc 7:

Lower: 0 enter

Upper: 5 enter

$$\int f(x)\,dx = 187.5$$

confirmed

GROUP NAME: I ♡ Science

Date: 4/15

Student Names (First and Last)

Speaker/Presenter: Lindsey C.

Writer/Prep: Corrine F.

Leader/Collaborator:

Independant Variable (x-axis): Time (hours)

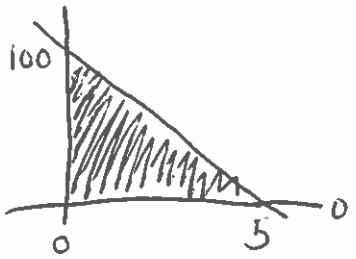
Dependant Variable (y-axis): Drug Concentration (ppm)

Conclusion (in words): As the limit goes to infinity the area is 285 ppm. The average is 47.5 ppm

Supporting Work:

x	y
0	100
1	80
2	75
3	45
4	25
5	10

$Y_1: -18x + 102$



$\Delta x = \frac{5-0}{n} = \frac{5}{n}$

$$A(n) = \left[\sum_{i=1}^{n} -18\left(0 + \frac{5}{n}i\right) + 102\right] \cdot \frac{5}{n}$$

$$= \left[\sum_{i=1}^{n} \frac{-90}{n}i + 102\right] \cdot \frac{5}{n}$$

$$= \left[\frac{-90}{n}\sum_{i=1}^{n} i + 102(n)\right] \cdot \frac{5}{n}$$

$$= \left(\frac{-90}{n} \cdot \frac{n(n+1)}{2} + 102(n)\right)\frac{5}{n}$$

$$A(n) = -225\left(\frac{n+1}{n}\right) + 510$$

$$\lim_{n\to\infty} = 285$$

GROUP NAME: Stuff & Things (Time)

Date: 15APR14

Student Names (First and Last)

Speaker/Presenter: Greg McAvoy

Writer/Prep: Keith Meserole

Leader/Collaborator: Stuff & Things (Time)

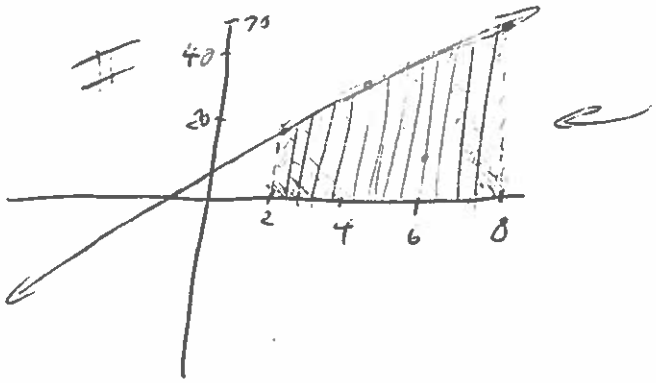
Independant Variable (x-axis): ~~Stuff~~ time

Dependant Variable (y-axis): # things and stuff

Conclusion (in words): at time 2 through 8 we have an area of 163.2 Stuff & Things / Time

Supporting Work:

x	y
2	20
4	40
6	10
8	70



Calc 7:

$y_1 = 2.9041x + 12.7123$

$\Delta x = \frac{6}{n}$

$$A(n) = \left[\sum_{i=1}^{n} 2.9041\left(2 + \frac{6i}{n}\right) + 12.7123\right] \cdot \frac{6}{n}$$

$$\sum \frac{17.4246}{n} i + 12.7123 + 5.8 \cdot$$

$$\left(\frac{17.4246}{n} \sum_{i=1}^{n} i + 18.5123 \cdot n\right) \frac{6}{n}$$

$$\left(\frac{17.4246}{n} \cdot \frac{n(n+1)}{2} + 18.5n\right) \frac{6}{n}$$

$$A(n) = \frac{52.2(n+1)}{n} + 111 \quad \lim_{n \to \infty} A_n = 163.2$$