

Sigma Notation

$$\sum_{i=a}^b f(i) = f(a) + f(a+1) + \dots + f(b)$$

$i = a$ ← index
 ← argument-

$$\sum_{i=1}^6 (9i+3) = \begin{matrix} i=1 & i=2 & i=3 & i=4 \\ 9(1)+3 & 9(2)+3 & 9(3)+3 & 9(4)+3 \\ & & 9(5)+3 & 9(6)+3 \end{matrix}$$

$$= 12 + 21 + 30 + 39 + 48 + 57 = 207$$

$$= \text{sum}(\text{seq}(9x+3, x, \underset{a}{1}, \underset{b}{6}), \underset{D}{1})$$

LIST = [2nd] [STAT] ~~LIST~~ ~~LIST~~ ~~LIST~~ ~~LIST~~ ~~LIST~~

LIST → Σ: sum(

LIST → OPS Σ: Seq.

OP

$$\sum_{i=1}^6 3 = 3 \times 6 = 18$$

$$\sum_{i=1}^6 9i = 9 \sum_{i=1}^6 i$$

$$1 + 2 + 3 + 4 + 5 + 6$$

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

$$\sum_{i=1}^6 9i + 3 = \sum_{i=1}^6 9i + \sum_{i=1}^6 3$$

$$= 9 \sum_{i=1}^6 i + \sum_{i=1}^6 3$$

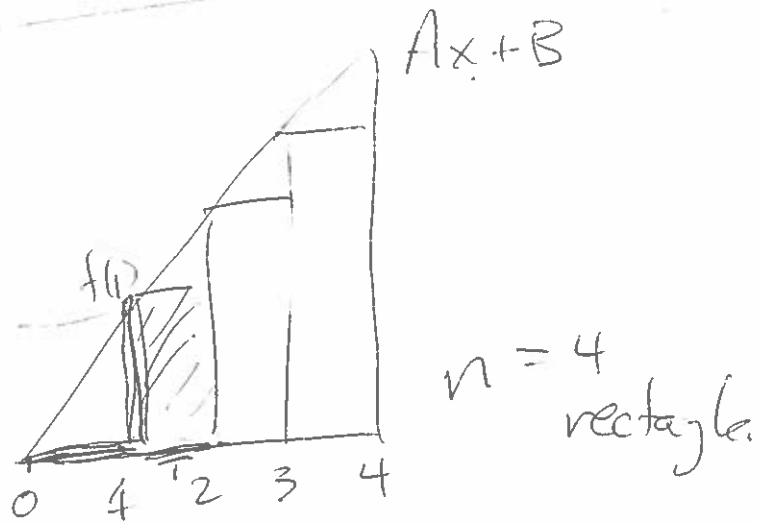
$$9 \left((6+1) \left(\frac{6}{2} \right) \right) + 3 \times (6)$$

$$= 9 \times 21 + 18$$

$$= 189 + 18$$

$$\underline{\underline{207}}$$

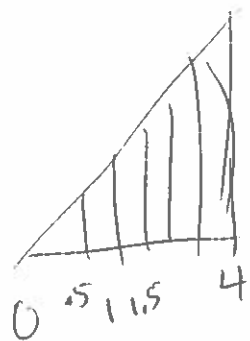
$$\sum_{i=1}^n Ax + B = A(n+1)\left(\frac{n}{2}\right) + Bn$$



$$\text{Area} = f(0) + f(1) + f(2) + f(3)$$

$$0 + f(1) \cdot 1 + f(2) \cdot 1 + f(3) \cdot 1$$

HEIGHT · WIDTH



$$\sum_{i=0}^4 f(i) \cdot 1$$

$$\sum_{i=0}^8 f\left(\frac{i}{2}\right) \cdot .5$$

width



$$\sum_{i=0}^{160} f\left(\frac{i}{4}\right) \cdot 0.25$$

width

$n = 160$
rectangles

$$\sum_{i=0}^{32} f\left(\frac{i}{8}\right) \cdot \frac{4}{32}$$

$n = 32$
rectangles

$$\sum_{i=1}^n f\left(\frac{i \cdot 4}{n}\right) \cdot \frac{4}{n}$$

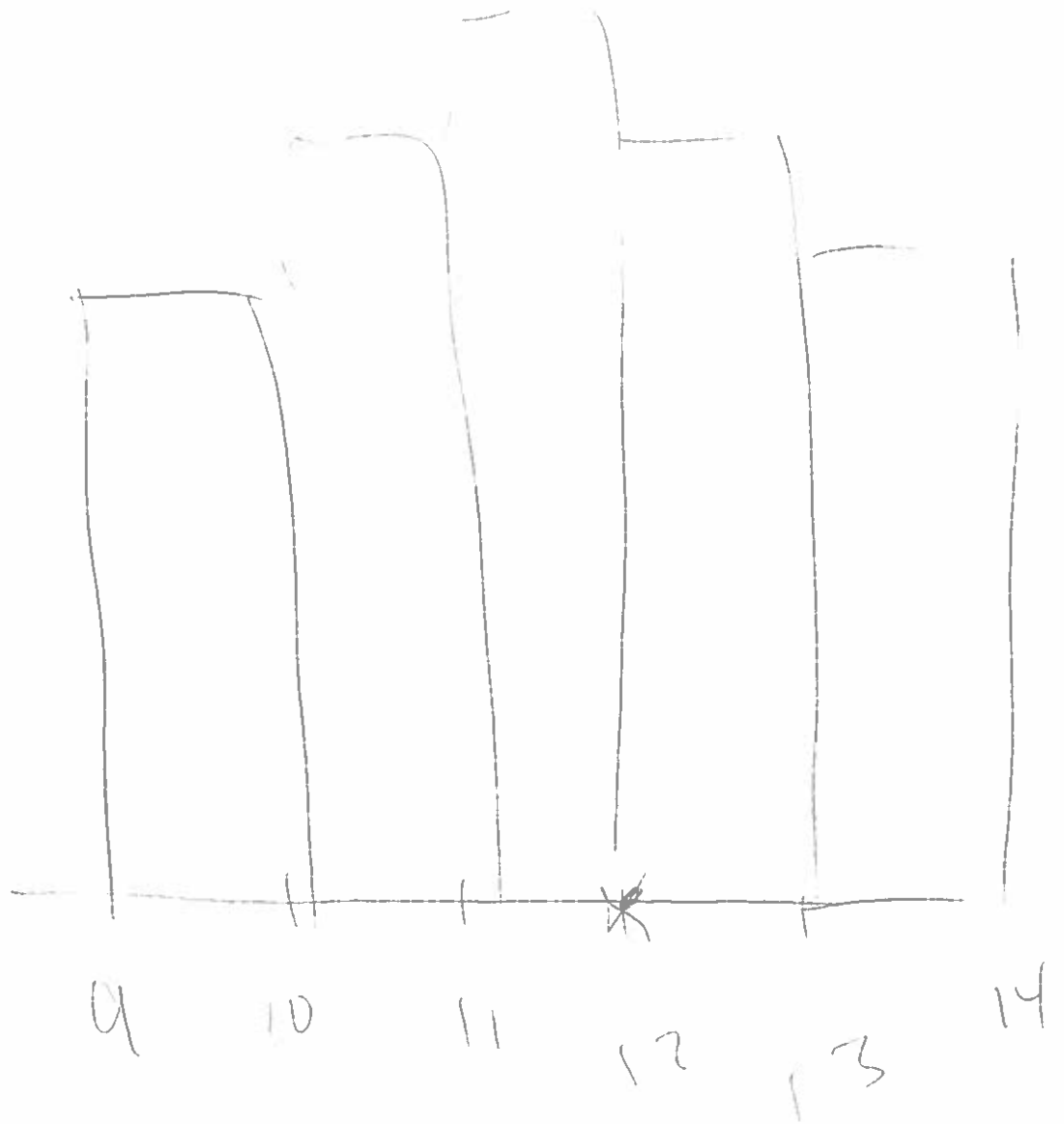
Height width

" " "
n rectangles

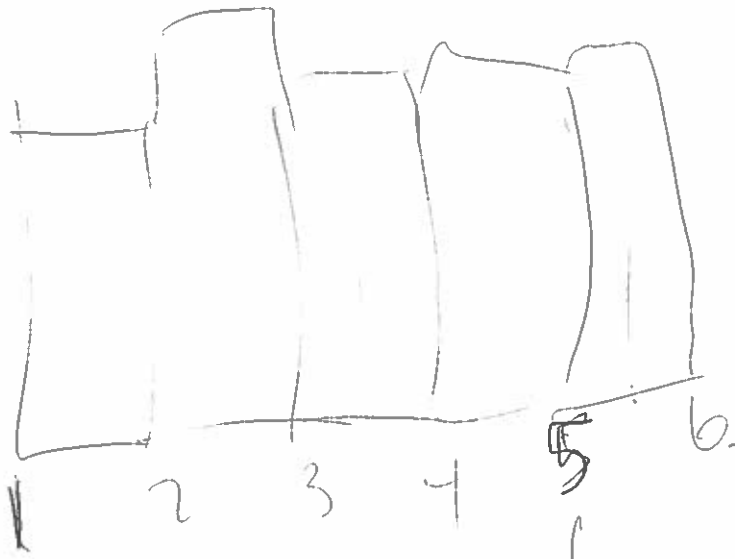
SEIZ AX+B

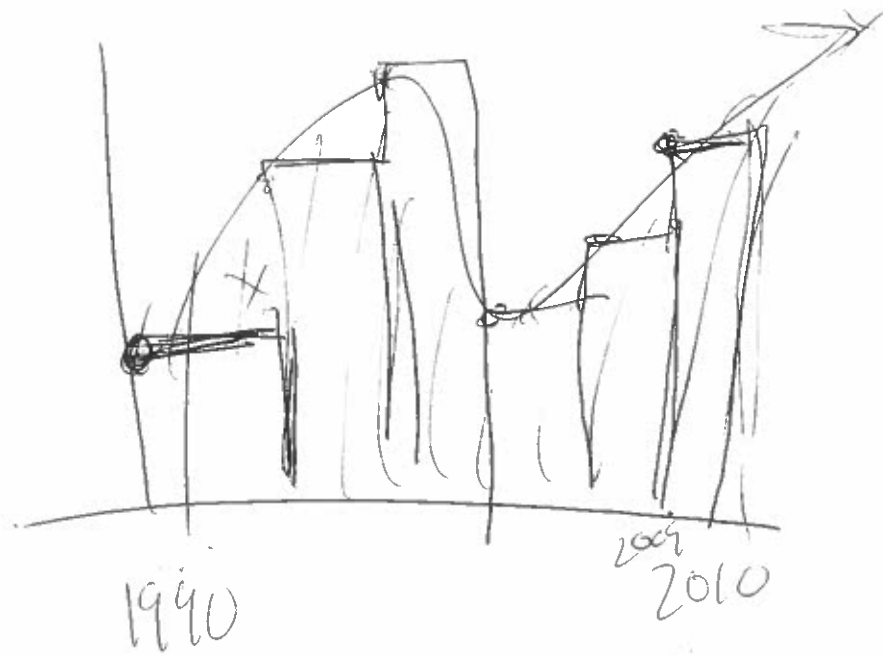
$$\lim_{n \rightarrow \infty} \frac{a_1 n^2 + \dots}{a_2 n^2 + \dots} = \frac{a_1}{a_2}$$

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

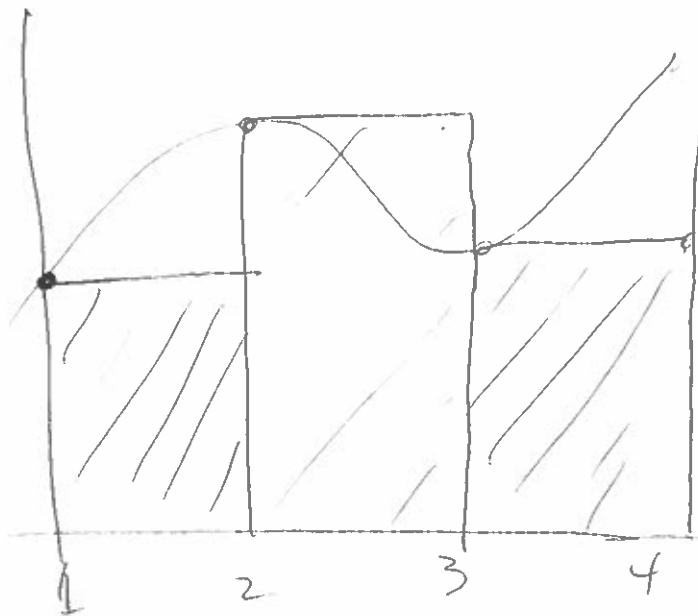


sum / seq / $y, x, a, b, \Delta x$ / Δt
 ↓ ↓ ↓ ↓
 start end change Δt





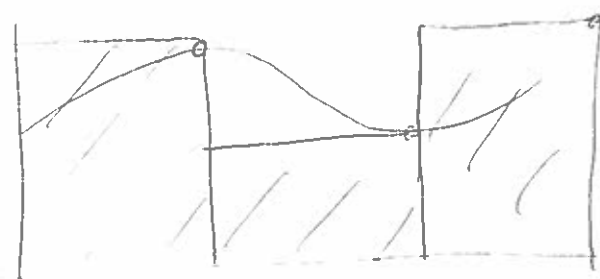
(C) 11 3.



Approx area with 3 rectangles.

Evaluated at Left Endpoint

$$(f(1) + f(2) + f(3)) \cdot \text{width}$$



$$f(2) + f(3) + f(4)$$

<p>GROUP NAME: <u>The Jesters</u></p> <p>Logo:</p>	<p>Student Names (First and Last)</p> <p>Speaker/Presenter: <u>Ethan Stewart</u></p>
<p>Date: _____</p> <p>Topics:</p>	<p>Writer/Prep: <u>Kevin Collins</u></p> <p>QC/Leader: _____</p>

Instructions:

[Handwritten mathematical work, including a large number 4, a list of numbers, and a calculation: 2500 - 20.9 x 1 x 10^4]

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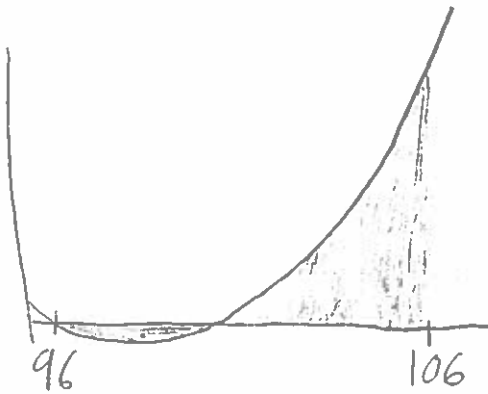
500

<p>GROUP NAME: <u>Wolf Pack</u></p> <p>Logo:</p>	<p>Student Names (First and Last)</p> <p>Speaker/Presenter: <u>DC</u></p>
<p>Date: <u>11/13/13</u></p> <p>Topics:</p>	<p>Writer/Prep: <u>Jared</u></p> <p>QC/Leader: <u>Quinn</u></p>

Instructions:

$y_1 = \text{Cubic Reg}$

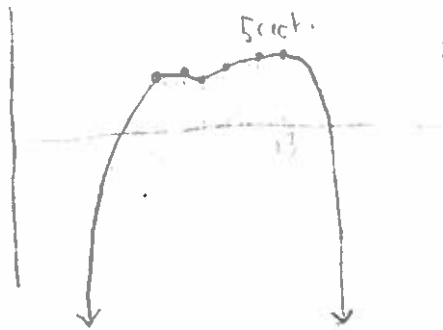
$$\text{Sum}(\text{seg}(Y_1, X, 96, 105.75, .25) \times .25 = 24,247.12627$$



$$= 25,465.8$$

<p>GROUP NAME: <u>The Scientists</u></p> <p>Logo:</p>	<p>Student Names (First and Last)</p> <p>Speaker/Presenter: <u>Nicole</u></p>
<p>Date: <u>11/13/13</u></p> <p>Topics: <u>Calc</u></p>	<p>Writer/Prep: <u>Darin</u></p> <p>QC/Leader: <u>Kiersten</u></p>

Instructions:



$$\text{sum}(\text{seq}(y, x, 8, 13, 1)) = 5084$$




$$\text{sum}(\text{seq}(y, x, 8, 13, .5)) \times .5 = 4676.160156$$

width of each rect: .1

$$\text{sum}(\text{seq}(y, x, 8, 13, .1)) \times .1 = 4346.732656$$

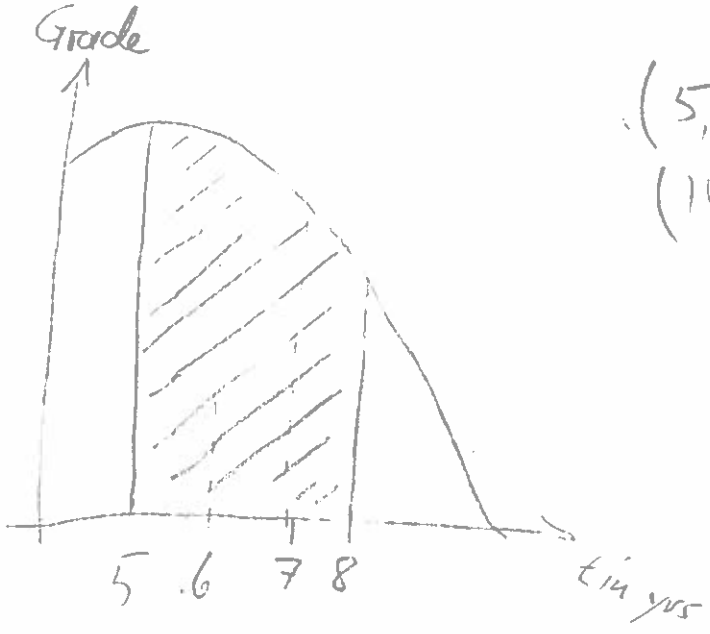
$$\text{get.oi.answe} \quad 42639236$$

42639236

<p>GROUP NAME: <u>MathHS</u></p> <p>Logo: </p>	<p>Student Names (First and Last)</p> <p>Speaker/Presenter: <u>Kyle 17.030</u></p>
<p>Date: <u>11/13/2013</u></p> <p>Topics:</p>	<p>Writer/Prep: <u>Alex Callahan</u></p> <p>QC/Leader: <u>Lucy Hetherington</u></p>

Instructions:

$$(\text{sum}(\text{seq } Y_1, x, 5, 7, 1)) = 279.0002$$



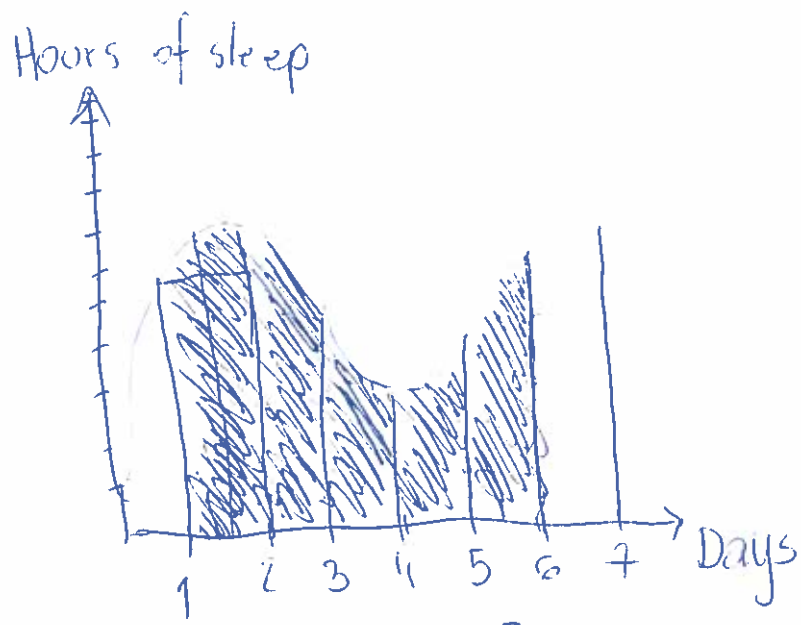
- (5, 49.437)
- (10, 4.6349)

last time was 162 = $(\text{sum}(\text{seq } Y_1, x, 5, 7.99, 0.01))$

GROUP NAME: Apples 2 Apples
 Logo:
 Date: 11/13/13
 Topics:

Student Names (First and Last)
 Speaker/Presenter: ANNA S
 Writer/Prep: ANNA S
 QC/Leader: ANNA S

Instructions: Rectangles under the curve



$$\text{sum}(\text{seq}(y_i, x, 1, 5, 1)) = 37 \ 30411663$$

last time

before: $\int f(x) dx = 30.23472$ hours of sleep

GROUP NAME: Time Is Money

Student Names (First and Last)



Speaker/Presenter: Angelika Mazurek

Writer/Prep Shiv Singh

QC/Leader: Eugenio Pelaez

Date: 11/13/13

Topics:

Instructions:

Sale of iPhone 4S 

$Y_1 = \text{Quad Reg.}$

[2,10] STAT

→ → 5: Curve

→ → 2: Y=

→ → 1: X=

Exp: 1

Variable: x

Start: 1

end: 50

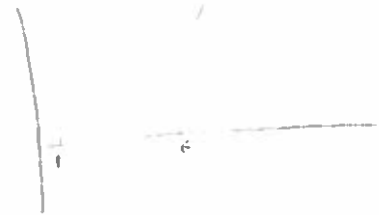
Step: .01

Calc: \int

[2,10] Calc

$$\int f(x) dx = 475.85$$

iPhone 4S Sales.



$$\int_{1}^{50} f(x) dx = 476.445$$

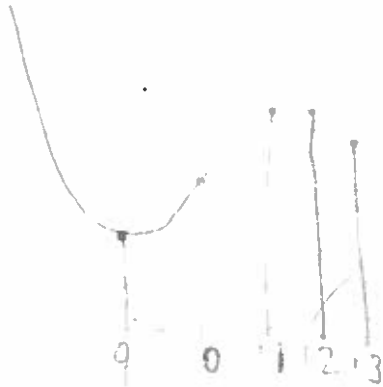
we need

triangles

<p>GROUP NAME: <u>CSC</u></p> <p>Logo:</p>	<p>Student Names (First and Last)</p> <p>Speaker/Presenter: <u>Conner / Dave</u></p>
<p>Date: <u>11/13/13</u></p> <p>Topics:</p>	<p>Writer/Prep: <u>Courtney / David</u></p> <p>QC/Leader: <u>Stephen Smith</u></p>

Instructions:

$$\text{sum } \text{sq}(Y_i, x_i, 0, 12, \dots) = \frac{1480.55 \text{ yr/price}}{4 \text{ yr}} \cdot 3 \text{ yr} \cdot \text{price}$$



$$\text{cost} + \text{time} = 409 \cdot \text{price}$$

GROUP NAME: IRISH MATH BOMBS

Logo:



Student Names (First and Last)

Speaker/Presenter: Bobby O'Connor

Writer/Prep: Conner Krusman

QC/Leader: Bill's Olde tavern

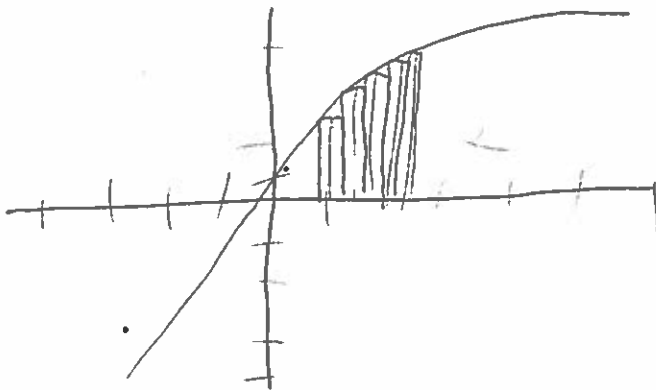
Date: _____

Topics:

Instructions:



$$\sum_{x=3}^{13} (-0.003)x^2 + (1.1857)x + 9.5366 = 169.8978$$



10 rectangles