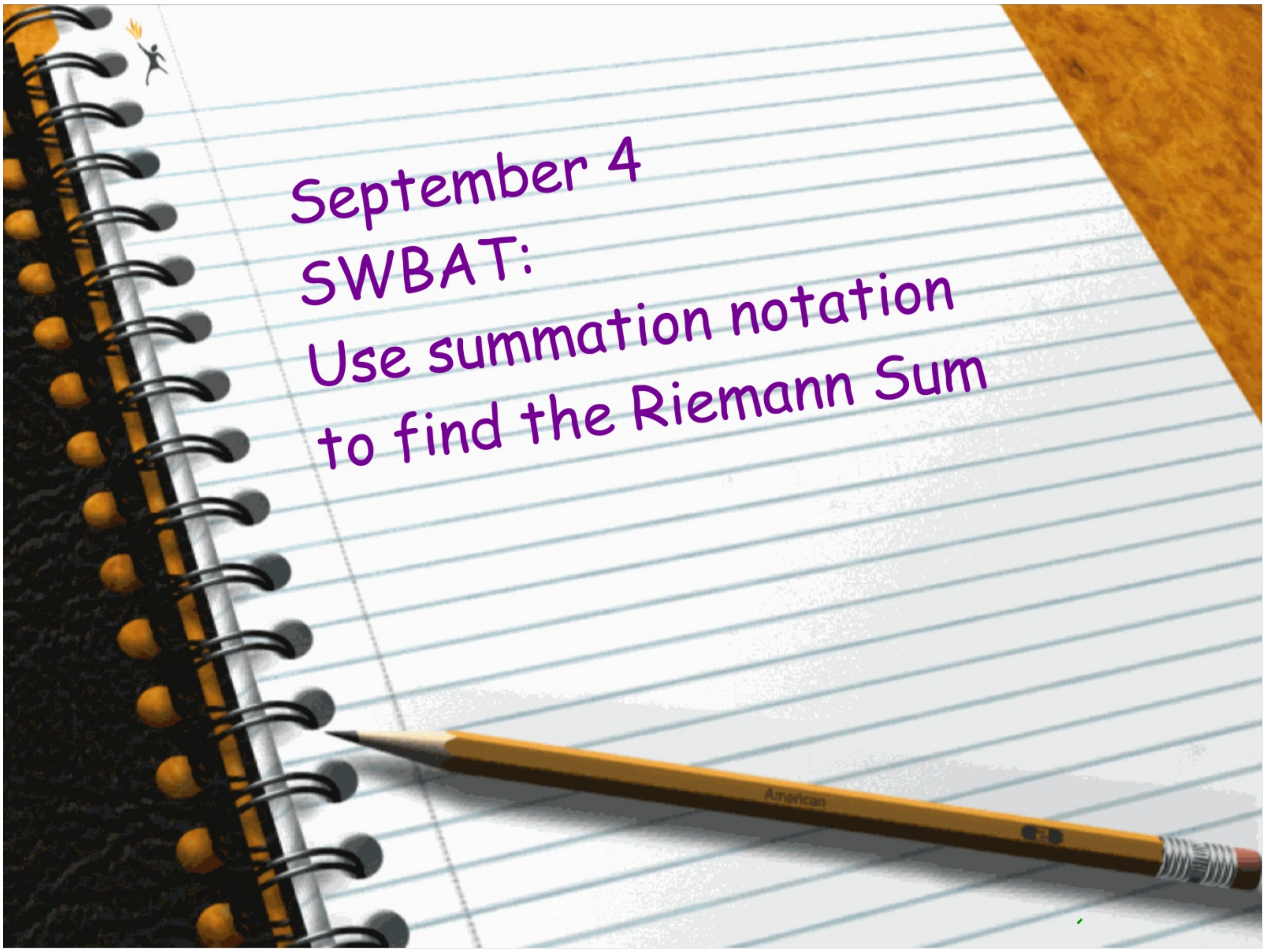


1) Write an equation of the line with slope = 2 and goes through the point (1, 5).

$$\boxed{\begin{aligned} y - y_1 &= m(x - x_1) \\ y - 5 &= 2(x-1) \\ y &= 2x + 3 \end{aligned}}$$

$y = 5 + 2(x-1)$

3) Solve: $x^3 + 2 = 10$

$$\boxed{\begin{aligned} x^3 + 2 &= 10 \\ -2 \quad & \;\; -2 \\ x^3 &= 8 \\ \sqrt[3]{x^3} &= \sqrt[3]{8} \\ x &= 2 \end{aligned}}$$

$x = \sqrt[3]{8}$

5) Solve: $\frac{3x-7}{x} = 2$

$$\boxed{\begin{aligned} \frac{x}{1} \cdot \frac{3x-7}{x} &= 2 \cdot x \\ 3x - 7 &= 2x \\ -7 &= -x \\ 7 &= x \end{aligned}}$$

$\frac{3x-7}{x} = \frac{2}{1}$

$3 - \frac{7}{x} = 2$

$\frac{3x}{x} - \frac{7}{x}$

Can you cancel the $3x$ and x?

$-\frac{7}{x} = -1$

2) Solve: $2x^2 - 18 = 0$

$$\boxed{\begin{aligned} 2x^2 - 18 &= 0 \\ +18 &\;\; +18 \\ 2x^2 &= 18 \\ \frac{2x^2}{2} &= \frac{18}{2} \\ x^2 &= 9 \\ \sqrt{x^2} &= \sqrt{9} \\ x = 3 \quad \text{AND} & \quad x = -3 \end{aligned}}$$

4) Factor: $2x^2 - 24x$

$$\boxed{2x^2 - 24x = 2x(x-12)}$$

$2(x^2 - 12x)$

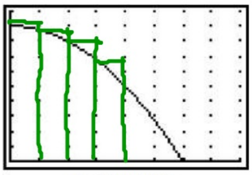
$x(2x - 24)$

$(2x+0)(x-12)$

1. Let $f(x)=9-x^2$ on [0,3]

a) If all intervals are the same width are there are six rectangles, what is the value of Δx_k?_______.
Use this value to compute the following.

L_6 =

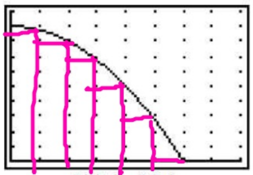


Left-hand Rule

20.125

Interval	x-value	y-value/ height	Width	area

R_6 =

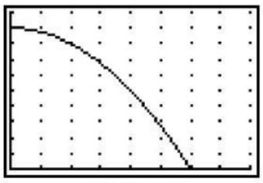


Right-hand Rule

15.625

Interval	x-value	y-value/ height	Width	area

M_6 =



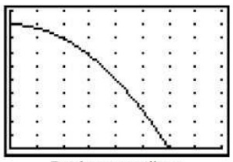
Midpoint Rule

17.525

Interval	x-value	y-value/ height	Width	area

Homework - Due Friday

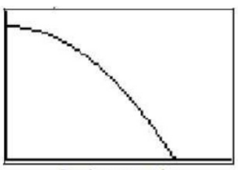
b) Suppose Δx_k has width equal 0.5. Chose a random value for x_k in each interval and compute the area of each Riemann rectangle. Find the total of the rectangles.



Random x-coordinate

Interval	x-value	y-value/ height	Width	area

c) Choose six randomly sized intervals and choose a point at random in each interval. Compute the area of the Riemann rectangle and find the total area.



Random rectangles

Interval	x-value	y-value/ height	Width	area

2. Let $f(x)=3^x$ on [-1,3]

a) Find

L_8 =

R_8 =

M_8 =

width?

8 rectangles

$\text{width} = .5 = \frac{3-(-1)}{8} = \frac{4}{8}$

~~b) Suppose Δx_k has width equal 0.5. Chose a random value for x_k in each interval and compute the area of each Riemann rectangle. Find the total area approximated by the rectangles.~~

~~c) Choose eight randomly sized intervals and choose a point at random in each interval. Compute the area of the Riemann rectangle and find the total area approximated by the rectangles.~~

Summation Notation

$$\sum_{x=a}^{b} f(x)$$

sum of $f(x)$ from $x = \underbrace{a \text{ to } b}_{\text{positive whole \#s}}$

$$\sum_{x=1}^{4} x = 1+2+3+4 = 10$$

$$\sum_{x=2}^{5} x^2 = 2^2+3^2+4^2+5^2$$

$$= 4+9+16+25 = 54$$

$$\sum_{x=1}^{3} 2x-5$$

$$(2(1)-5)+(2(2)-5)+(2(3)-5)$$

$$-3 + -1 + 1 = -3$$

write in summation notation

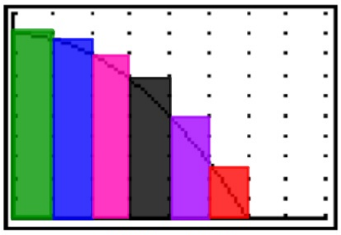
$$2^1+2^2+2^3+2^4+2^5+2^6 = \sum_{x=1}^{6} 2^x$$

$$\sin(3\pi)+\sin(4\pi)+\sin(5\pi)+\sin(6\pi) = \sum_{x=3}^{6} \sin(x\pi)$$

Let $f(x) = 9 - x^2$ on $[0,3]$

a) If all intervals are the same width are there are six rectangles, what is the value of Δx_k?________.
Use this value to compute the following.

$L_6 =$



Left-hand Rule

Interval	x-value	y-value/ height	Width	area
	0	$9-0^2$	.5	
	.5	$9-.5^2$	.5	
	1	$9-1^2$	.5	
	1.5	$9-1.5^2$	.5	
	2	$9-2^2$	.5	
	2.5	$9-2.5^2$	.5	

$$.5(9-0^2)+.5(9-.5^2)+.5(9-1^2)+.5(9-1.5^2)$$
$$+.5(9-2^2)+.5(9-2.5^2)$$

$$=.5(9-0)^2+.5\left(9-\frac{1}{2}^2\right)+.5\left(9-\left(\frac{2}{2}\right)^2\right)$$
$$+.5\left(9-\left(\frac{3}{2}\right)^2\right)+.5\left(9-\left(\frac{4}{2}\right)^2\right)+.5\left(9-\left(\frac{5}{2}\right)^2\right)$$

$$=\sum_{x=0}^{5} .5\left(9-\left(\frac{x}{2}\right)^2\right)$$