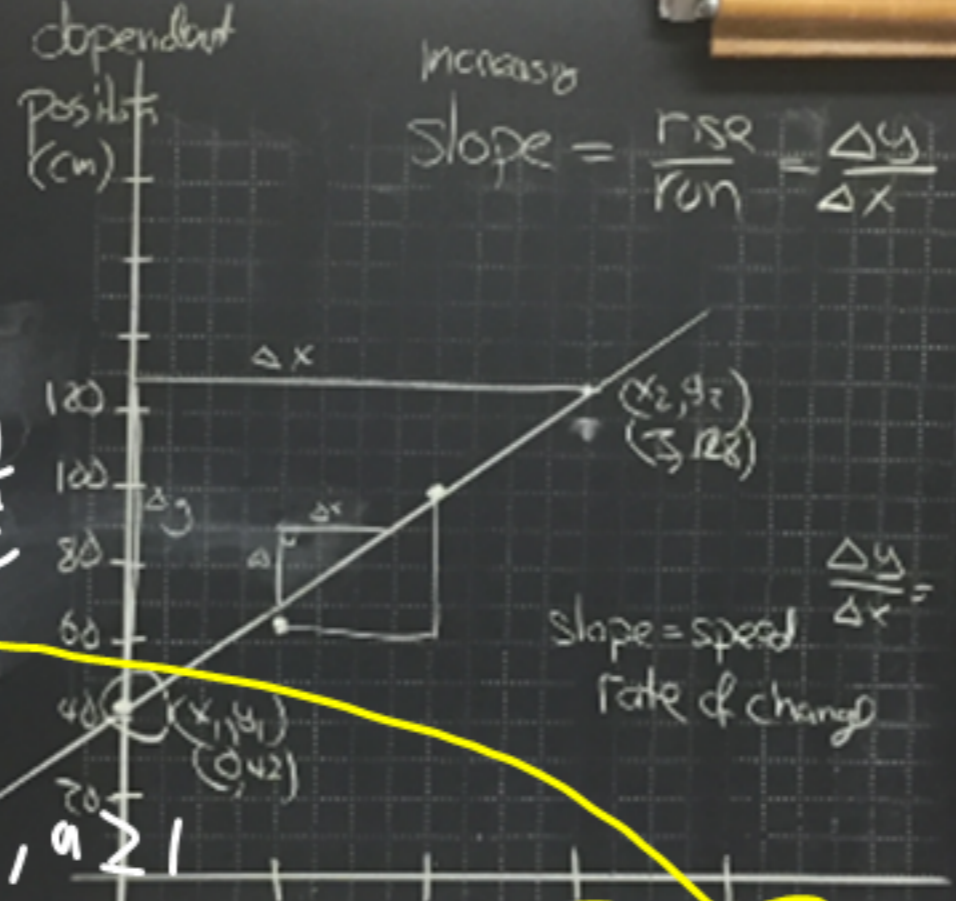


(s)	(cm)
Time	Position
0	42
3	65
6	100
9	128

$u_0 = 42$
 $u_n = 28.67 + u_{n-1}, n \geq 1$
 $u_n = u_{n-1} + 28.67, n \geq 1$

no diff



increase
 $\text{Slope} = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x} = \frac{\text{change } y}{\text{change } x} = \frac{y_2 - y_1}{x_2 - x_1}$
 $\frac{128 - 42}{9 - 0} = \frac{86}{9} = 28.67$

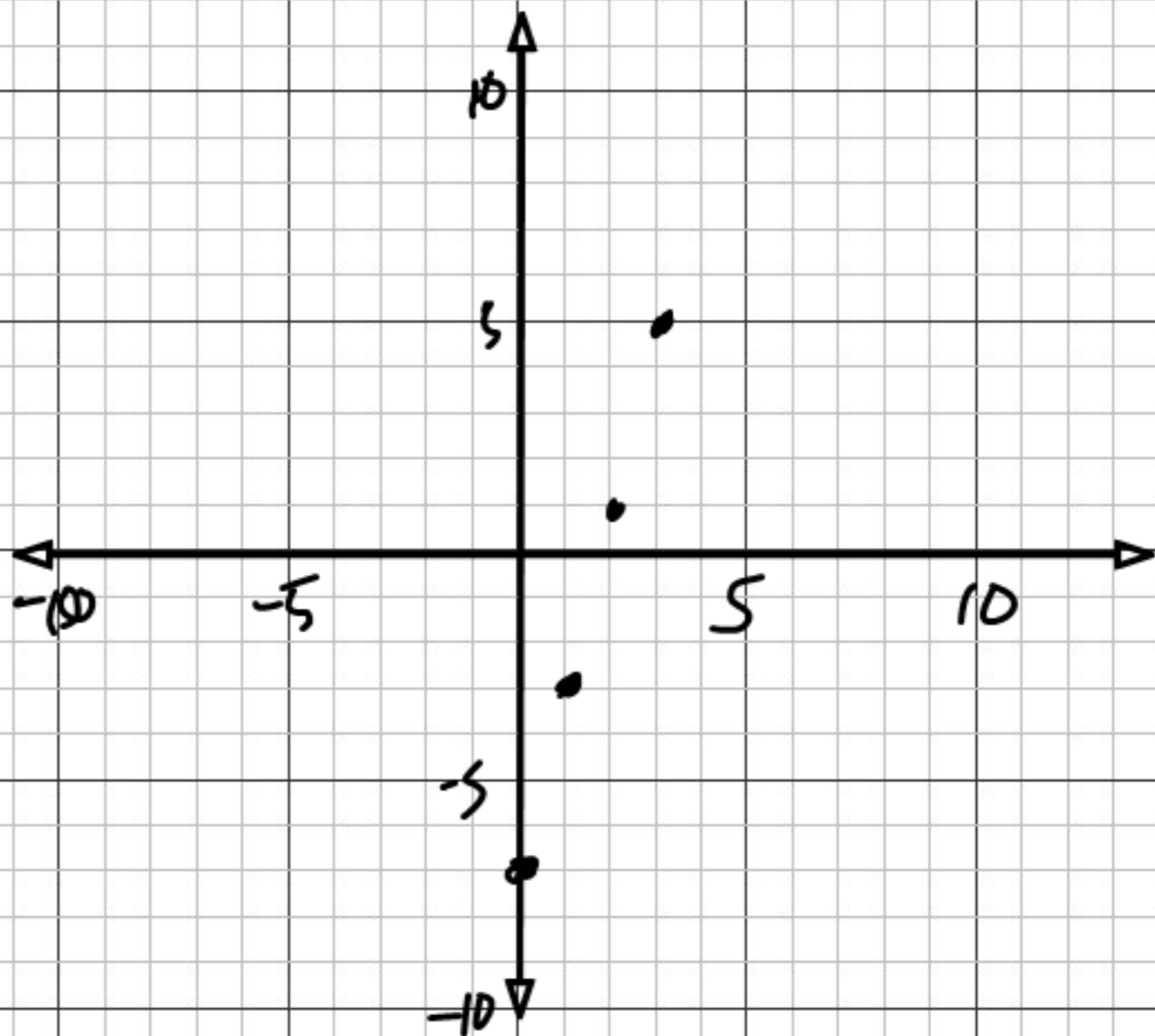
$\frac{\Delta y}{\Delta x} = \frac{86 \text{ cm}}{3 \text{ s}} = 28.67 \text{ cm/s}$

$y = 28.67x + 42$

eqn in slope-int
 $y = mx + b$
 slope \uparrow m
 28.67
 y-int \uparrow b
 42



graph $y = 4x - 7$



Section 3.1 Explicit Formula of an Arithmetic Sequence

Arithmetic Sequence
start at a
common difference = b

Explicit formula
start at a
common difference = b

start with
term 0

$$u_0 = a$$

$$u_n = u_{n-1} + b, n \geq 1$$

n is an
integer

$$u_n = a + bn$$
$$n \geq 0$$

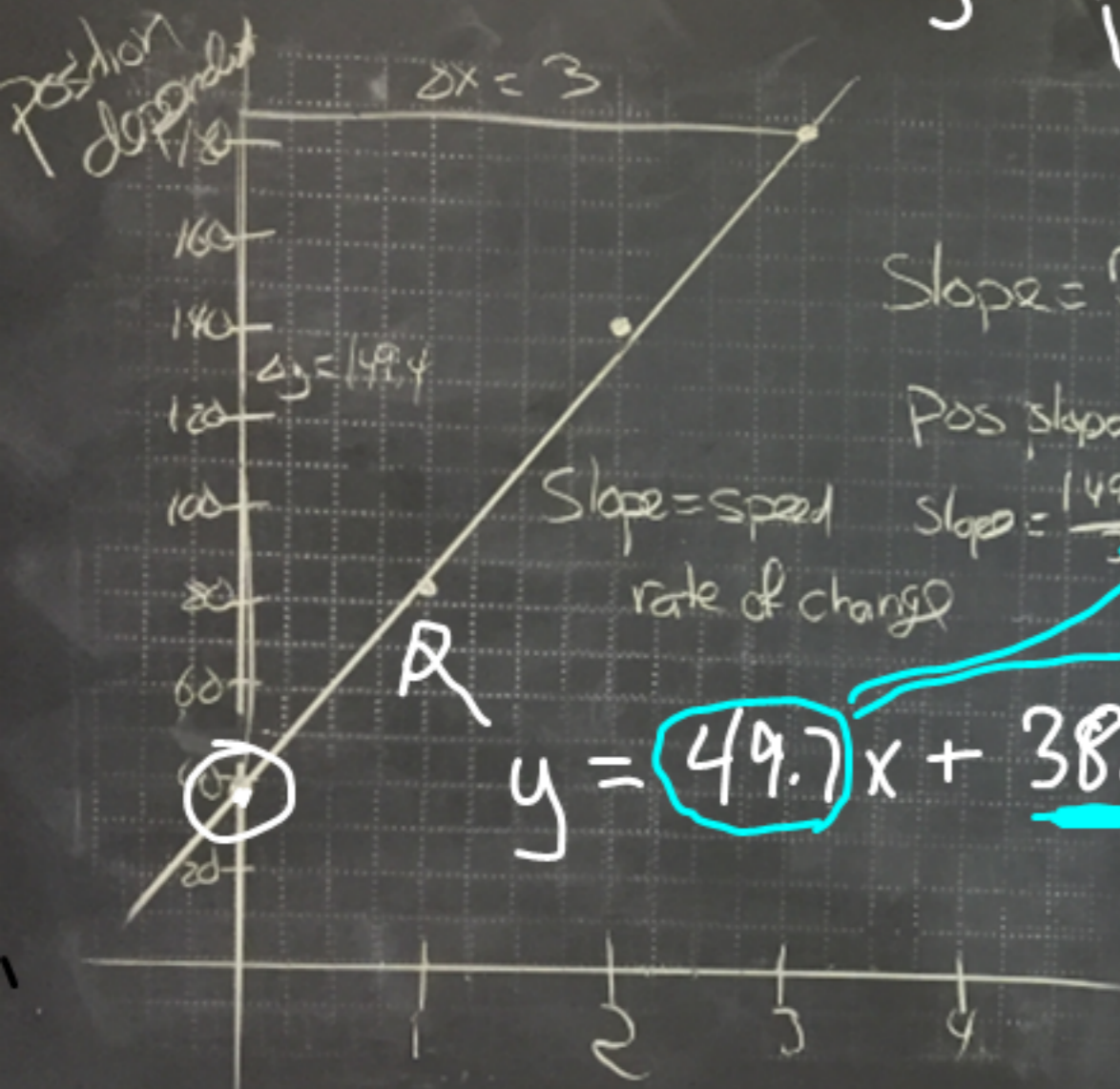
linear equation

y-int \downarrow slope \downarrow

$$y = a + bx$$

x can be
any real
number

$$y = mx + b \Rightarrow \text{slope-intercept form}$$



(s)	(cm)
time	Position
0	38.2
1	84
2	142.5
3	187.3

Diff

(cm)
Distance
45.8
58.5
44.8

Arithmetic sequence

start

$u_0 = 38.2$

$u_n = u_{n-1} + 49.7, n \geq 1$

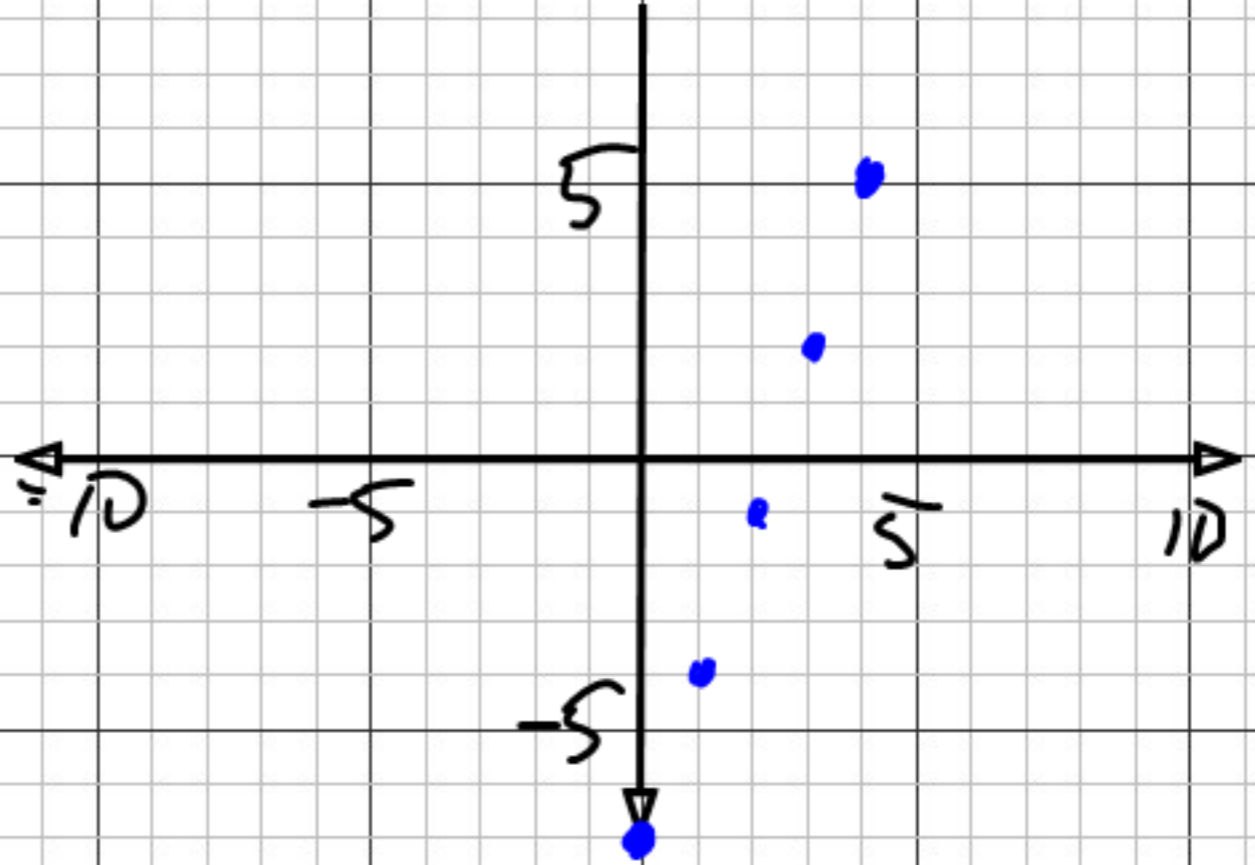
Speed

average = $\frac{45.8 + 58.5 + 44.8}{3} = 49.7 \text{ cm/s}$



Graph $y = 3x - 7$

$$\frac{\text{rise}}{\text{run}} = \text{slope} = 3$$
$$y\text{-int} \Rightarrow (0, -7)$$



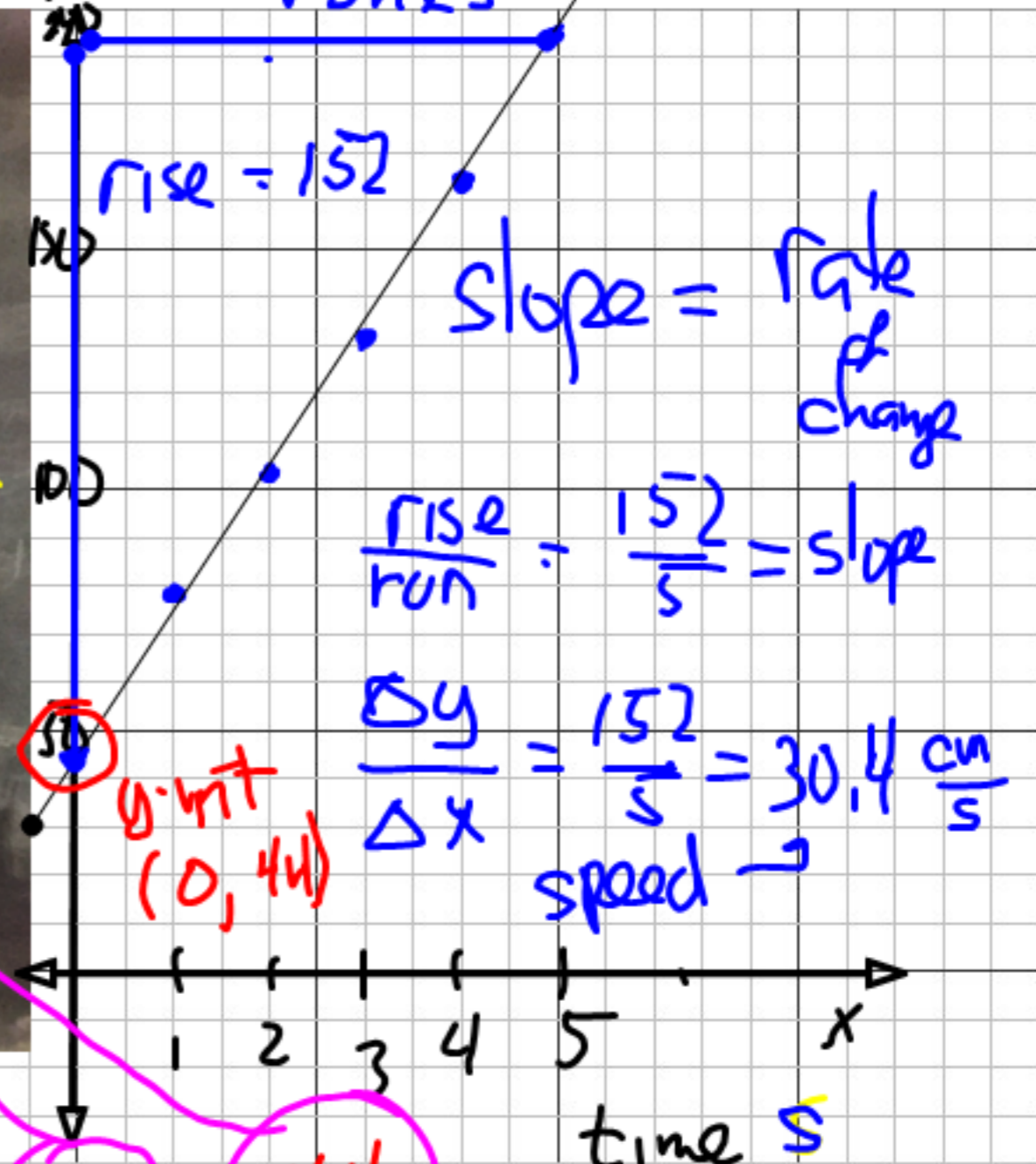
3.1

time (s)	Position (cm)
0	44
1	79
2	104
3	131
4	165
5	196

$U_0 = 44$
 $U_n = U_{n-1} + 25.23$
 $\frac{79}{44} = 1.795$
 $\frac{104}{79} = 1.316$
 $\frac{131}{104} = 1.259$
 $\frac{165}{131} = 1.259$
 $\frac{196}{165} = 1.187$
 $\frac{25.23}{30.4} \approx 0.83$
 $n \geq 1$
 30.4 cm/s

Ave = 30.4

Dependent



slope - intercept form
 $y = mx + b$
 ↑ slope ↑ y-int

$y = 30.4x + 44$

Independent variable

Graph $y = 3x - 7$

slope = 3
y-int = (0, -7)

