

4.5 Finding the Rule of the Linear function

A straight line always follows the RULE

$$y = aX + b$$

Where:

$y \rightarrow$ is the Dependent variable
 $x \rightarrow$ is the Independent variable
 $a \rightarrow$ is the R.O.C.(slope)
 $b \rightarrow$ is the initial value (y-intercept)

Steps to Finding the RULE given 2 points

Step 1: Find the slope using $a = \frac{y_2 - y_1}{x_2 - x_1}$

Step 2: Find the y-intercept (b) by plugging the (x_1, y_1) coordinates into

$$b = y_1 - ax_1$$

Step 3: State the final equation.

$$y = aX + b$$

Ex1: Find the rule of the line going through $(-6,5)$ & $(-4, 6)$

Step 1: Find a

Step 2: Find b using $(-6,5)$

Ex 2: Find the rule of the line going through $(-2,6)$ & $(1, 3)$

A table of values shows the relationship between two variables, typically x and y .

time	height
0	1.5
1	3
2	4.5
3	6

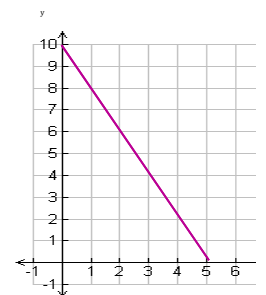
We call

X the independent variable because we choose it.

y is the dependant variable because it depends on the chosen value of x .

TOV Case 1- Both a and b are clear

Run	x	y	Rise
	0	10	
	1	8	
	2	6	
	3	4	



$a = \underline{\quad}$ $b = \underline{\quad}$ $y = \underline{\quad}$

TOV Case 2- **a** is clear, must find **b**

Run	x	y	Rise
	5	37	
	7	47	
	9	57	
	11	67	

a = **b** = **y** =

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TOV Case 3- **a** not clear and must find **b**

Run	x	y	Rise
	32	59	
	14	23	
	5	5	
	73	141	

Rise
Run =

a = **b** = **y** =

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Practice:
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