FIND SLOPE: TABLE OF VALUES & EQUATION

A **TABLE OF VALUES** is a table used to record the ___Coordinates___ of points in a relation.

A **RELATION** is a pattern that connects two sets of data (_equation, graph OR TOV_). (x,y)

A **LINEAR RELATION** is a ___relation that forms a line___

SLOPE is the ___rate of change___ of one point on a line in relation to another point.

TO FIND SLOPE USING A TOV...

We look at the unit change in one value ("*x*") in relation to the unit change in a second ("*y*") value.
(as "*x*" increases, we can find how much "*y*" changes)

$$\text{RATE OF CHANGE} = \textbf{SLOPE} = m = \frac{rise}{run} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

Example 1: Use a table of values to determine the slope for the relation.

x	$y = 3x+1$	ΔX	Coordinates (x, y)	ΔY
0	$y = 3($ 0 $) + 1 =$ 1	+1	(0 , 1)	+3
1	$y = 3($ 1 $) + 1 =$ 4	+1	(1 , 4)	+3
2	$y = 3($ 2 $) + 1 =$ 7	+1	(2 , 7)	+3
3	$y = 3($ 3 $) + 1 =$ 10	+1	(3 , 10)	+3
4	$y = 3($ 4 $) + 1 =$ 13		(4 , 13)	+3

$m = \dfrac{\Delta y}{\Delta x}$

$= \dfrac{3}{1}$

$= 3$

> If the **slope** is the **same** for all coordinates then the **rate of change** is **constant** → the line is **straight**.

Example 2: Slope and the Coefficient of x

x	$y = -3x + 4$	ΔX	Coordinates (x, y)	ΔY
-2	$y = -3(-2) + 4 = 10$	+1	(-2,10)	-3
-1	$y = -3(-1) + 4 = 7$	+1	(-1, 7)	-3
0	$y = -3(0) + 4 = 4$	+1	(0, 4)	-3
1	$y = -3(1) + 4 = 1$	+1	(1, 1)	-3
2	$y = -3(2) + 4 = -2$		(2,-2)	

$m = \dfrac{\Delta y}{\Delta x}$

$= \dfrac{-3}{1}$

$= -3$

COMPARE

Look at the **co-efficient of x** and the **rate of change.**

What do you notice?

All the same

Example 3: Find SLOPE using the TOV below

Δx

x	y
0	0
1	6
2	12
3	18
4	24
5	30

Δy

6
6
6
6
6
6

1
1
1
1
1

$$m = \frac{\Delta y}{\Delta x}$$

$$= \frac{6}{1}$$

$$= 6$$

Example 4: Transform each equation into a y = mx + b equation. Then state the slope.

a) $y = \boxed{-3}x + 7$

$m = -3$

b) $-2x + y = 6$

$y = \boxed{2}x + 6$

$m = 2$

c) $y - 3x = 7x + 2$

$y = 7x + 3x + 2$

$y = \boxed{10}x + 2$

$m = 10$

ALL ABOUT SLOPE...

GIVEN:	GRAPH	TWO POINTS	TOV	EQUATION $y = mx + b$
USE:	$m = \dfrac{rise}{run}$	$m = \dfrac{y_2 - y_1}{x_2 - x_1}$	$m = \dfrac{\Delta y}{\Delta x}$	# in front of the x

And remember... Leave SLOPE as a fraction, and always put in lowest terms!!!