Everything you need to know about linear relationships

So far…

**All functions are relations**….but not all relations are functions. Remember that a **function is 1 input and 1 output (can be the same)** and a *relation is 1 input and multiple outputs*.

**Slope** is the constant change, which is rise/run or m=y2 – y1

x2 – x1

**Slopes** are either **positive, negative, zero (0/#) or undefined (#/0**)

**Domain** is the restrictions on x (either belongs to xer, or xew)

**Range** is the restrictions on y (either yer, or yew)

3 way to write them, set notation (the longer one), list notation (discrete data) or interval notation (the bracket ones)

Ex.

**Parallel lines** have **slopes that exactly the same**, and **perpendicular slopes are the opposite inverse.**

Ex.

**For all the lines you need to be able to: Convert from each form to each form, write equations of lines from T.O.V, graphs, points on a graph and word problems.**

**Slope point form y=mx + b**

M = slope

B = y-intercept (remember this is a point (0,B)

X and Y are points that would appear on the graph, or line or problem

Ex

**General form Ax + By + C= 0**

Where A has to be positive and whole and B and C can’t be fractions.

M= opposite A Parallel slopes are the same, perpendicular are M= B

B A

x-intercept: opposite c

A

Y-intercept: Opposite C

B

**Slope point form y – y1 = m( x – x1)**

M= slope

x1 and y1 are the points given to you to make the equation

X and Y are points that would be on the graph

Parallel slopes change the x or y values

Perpendicular slopes flip and switch.