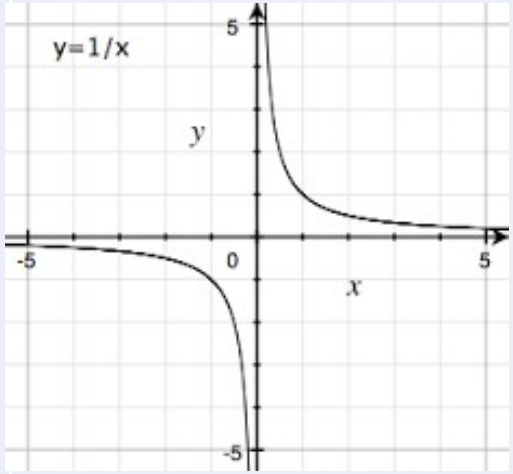
Non linear graphs

Keywords:	Reciprocal / Asymptote / Exponential / Growth and decay / Radius / Non-Linear					
Definition / Description:	Reciprocal: The inverse of any number except 0	Asymptote: the distance between a curve and a line which approaches but never touches zero	Exponential: a function, where we use repeated multiplication on an initial value to get the output	Growth and decay: an example of exponential increase (growth) and decrease (decay)	Radius: The distance between the centre of a circle and it's circumference	Non-Linear: A graph which does not have a consistent gradient
Knowledge points:	Reciprocal graph: remember the asymptote to the curve as we cannot divide by 0		Exponential Graph: An exponential graph in the form $y = a^x$ will cross the y axis at the point (0,1)		Equation of a circle: The equation of a circle with the centre (0,0) is expressed in the form: $x^2 + y^2 = r^2$	

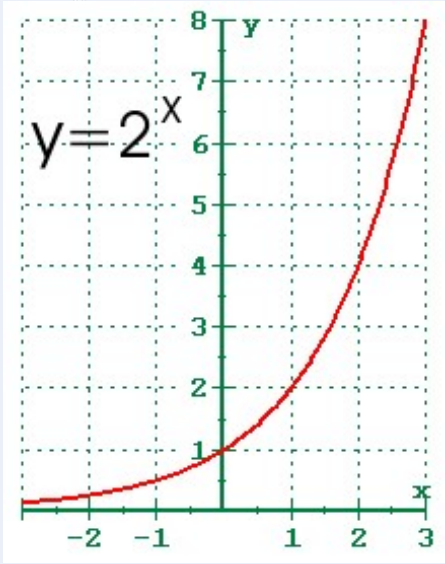
Knowledge point examples:

Use the table to plot the graph
$y = 1/x$

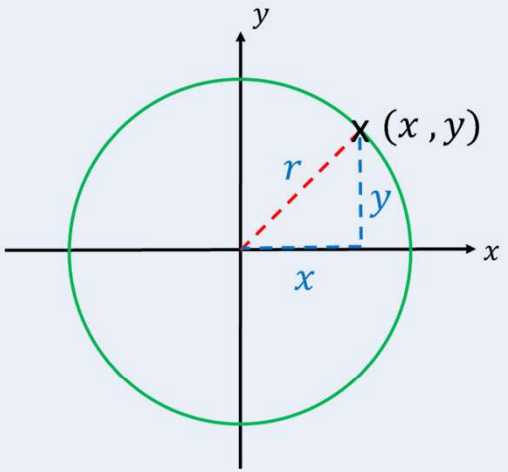
x	-4	-3	-2	-1	1	2	3	4
y	$-\frac{1}{4}$	$-\frac{1}{3}$	$-\frac{1}{2}$	-1	1	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$



Use the table to plot the graph
$y = 2^x$



x	-3	-2	-1	0	1	2	3
y	0.125	0.25	0.5	1	2	4	8



The following circles all have centre (0,0)

Write down the equations of the circles.

Radius $= 5$ $\quad x^2 + y^2 = 25$

Radius $= \frac{1}{8}$ $\quad x^2 + y^2 = \frac{1}{64}$

Linked Knowledge Maps	Non-Linear Graphs quadratic and cubic / Linear Graphs / Functions /