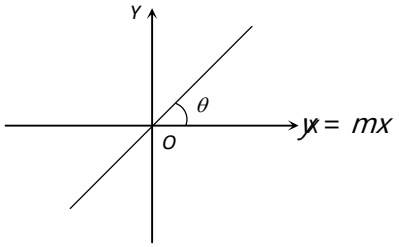
Graphs.

A graph is a line, straight or curved which shows the variation of one quantity *w.r.t.* other, which are interrelated with each other.

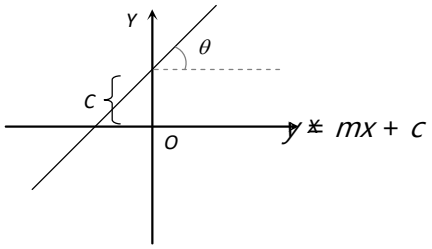
In a relation of two quantities, the quantity which is made to alter at will, is called the independent variable and the other quantity which varies as a result of this change is called the dependent variable. Conventionally, in any graph, the independent variable (*i.e.* cause) is represented along *x*-axis and dependent variable (*i.e.* effect) is represented along *y*-axis.

For example, we want to depict $V = IR$ graphically, in which R is a constant called resistance, V is the applied voltage (cause) and I (effect) is the resulting current. We will represent voltage on *x*-axis and current on *y*-axis.

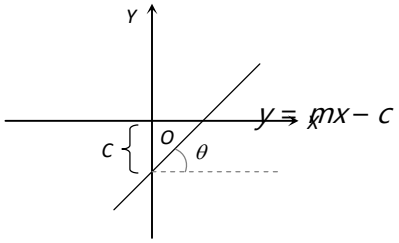
Some important graphs for various equations



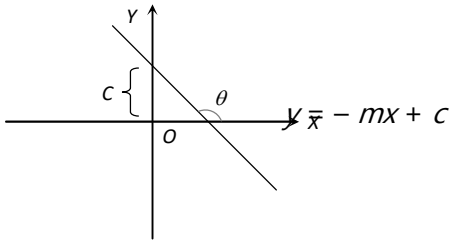
$m = \tan\theta$ = slope of line with *x*-axis



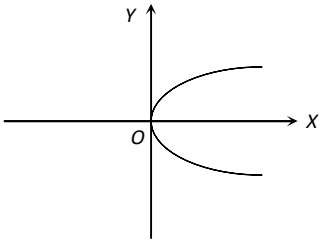
c = Positive intercept on *y*-axis and positive slope

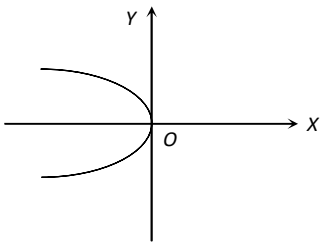


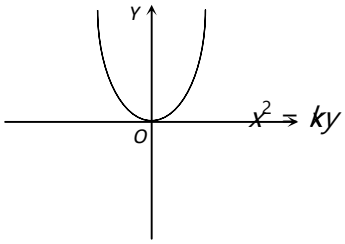
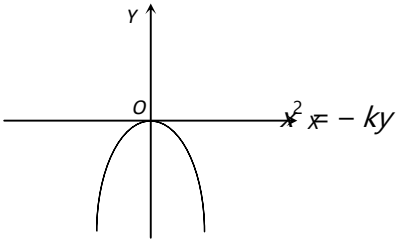
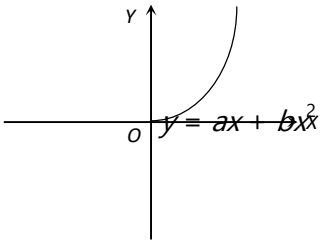
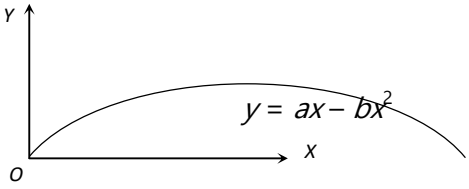
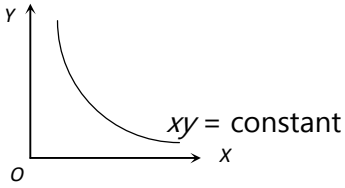
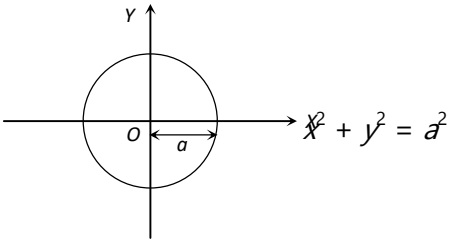
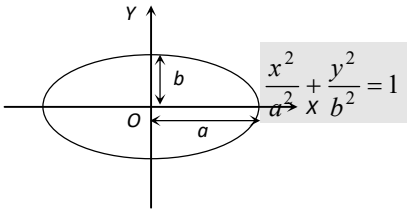
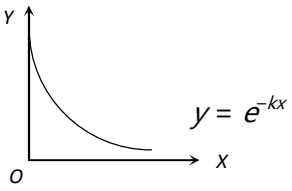
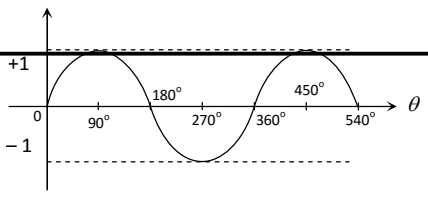
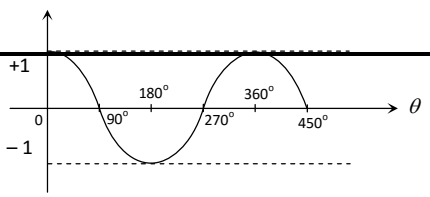
Negative intercept and positive slope



Positive intercept and Negative slope





$y^2 = kx$	$y^2 = -kx$
Symmetric parabola about positive X-axis	Symmetric parabola about negative X-axis
	
Symmetric parabola about positive Y-axis	Symmetric parabola about negative Y-axis
	
Asymmetric parabola	Asymmetric parabola
	
Rectangular hyperbola	Circle of radius 'a'
	
Ellipse of semi-major axis a and semi-minor axis b.	Exponential curve
	

$y = \sin\theta$	$y = \cos\theta$
sine curve	cosine curve