

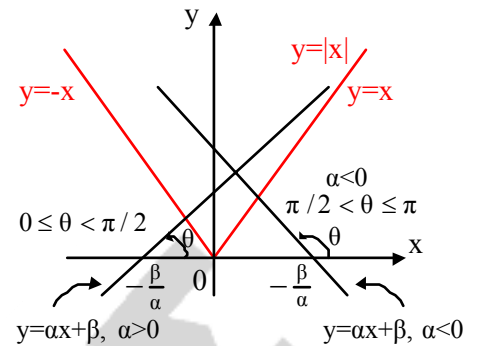
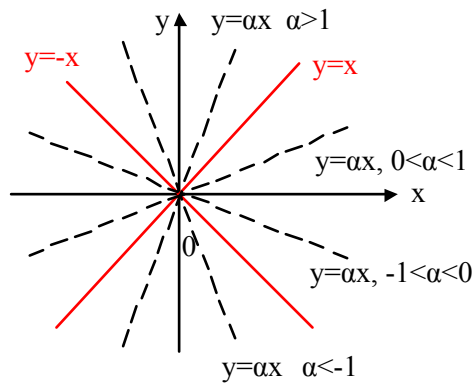
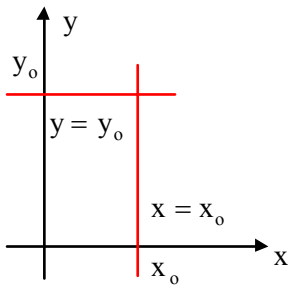
ΜΑΘ 004

ΓΡΑΦΙΚΕΣ ΠΑΡΑΣΤΑΣΕΙΣ ΣΤΟ ΕΠΙΠΕΔΟ

Τοπολόγιο & Μεθοδολογία

**ΕΥΘΕΙΑ**  $y=y_0$   $x=x_0$   $y=ax$   $y=ax+\beta$

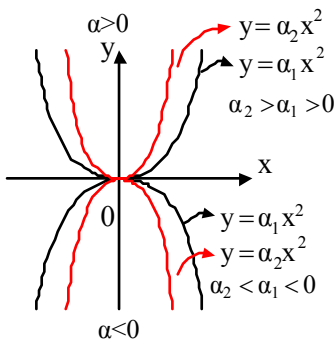
$y=ax+\beta$ ,  $a \neq 0$  και  $y=|x|$



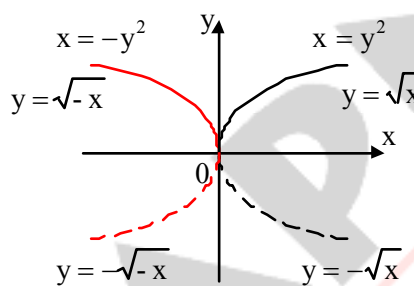
Κλίση της ευθείας :  $\epsilon\theta\phi = \alpha$

**ΠΑΡΑΒΟΛΗ – ΤΡΙΩΝΥΜΟ**  $y=x^2$   $x=y^2$   $x=-y^2$   $f(x)=ax^2+\beta x+\gamma$

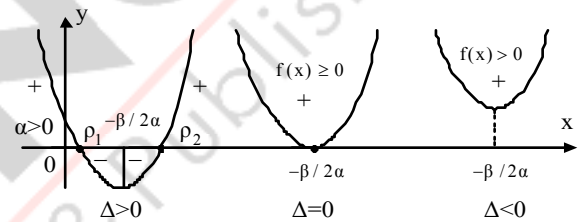
$y=ax^2$



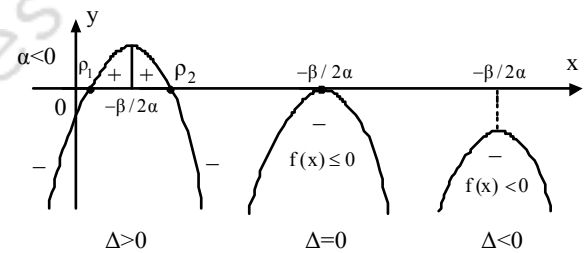
$x=y^2$ ,  $x=-y^2$



α) Για  $a > 0$  η παραβολή «βλέπει» προς τα πάνω

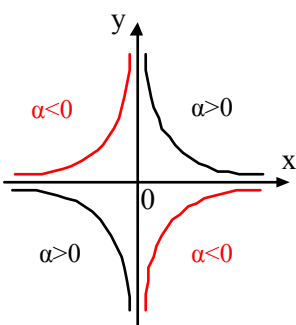


β) Για  $a < 0$  η παραβολή «βλέπει» προς τα κάτω :

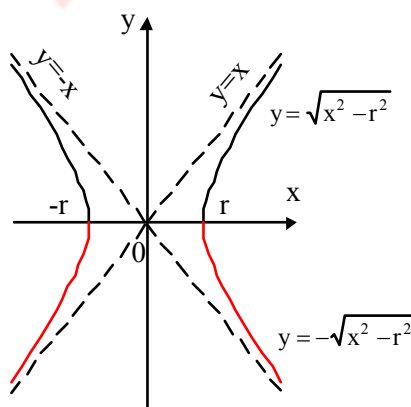


**ΥΠΕΡΒΟΛΗ**  $y=\frac{a}{x}$ ,  $x^2-y^2=r^2$ ,  $y=1/x^2$

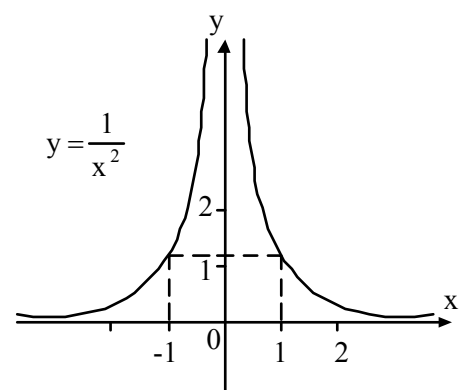
$y=\frac{a}{x}$ ,  $x \neq 0$



$x^2-y^2=r^2$



$y=\frac{1}{x^2}$ ,  $x \neq 0$

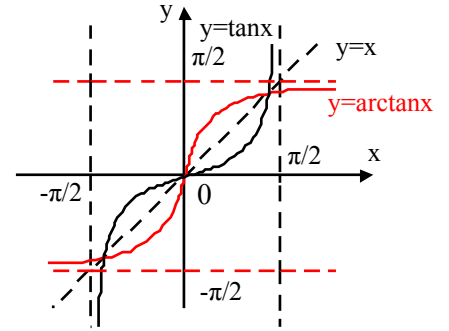
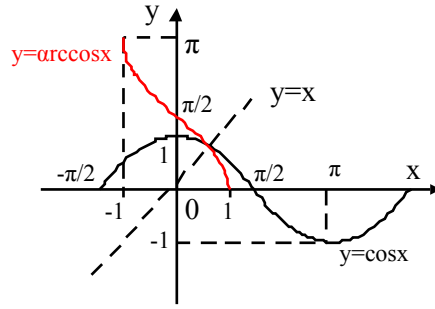
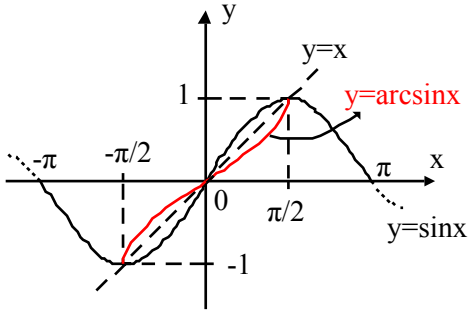


**ΤΡΙΓΩΝΟΜΕΤΡΙΚΕΣ & ΑΝΤΙΣΤΡΟΦΕΣ**  $y = \sin x$   $y = \arcsin x$   $y = \cos x$   $y = \arccos x$   $y = \tan x$   $y = \arctan x$

Ημίτονο – Τόξου ημιτόνου  
 $y = \sin x$ ,  $x \in \mathbb{R}$ ,  $y = \arcsin x$ ,  $x \in [-1,1]$

Σνημίτονο – Τόξο σνημιτόνου  
 $y = \cos x$ ,  $x \in \mathbb{R}$ ,  $y = \arccos x$ ,  $x \in [-1,1]$

Εφαπτομένη – Τόξο εφαπτομένης  
 $y = \tan x$ ,  $y = \arctan x$



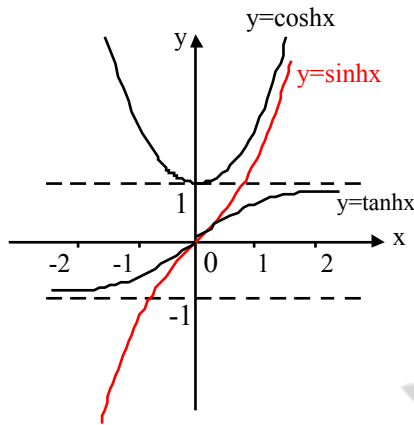
**ΥΠΕΡΒΟΛΙΚΕΣ ΣΥΝΑΡΤΗΣΕΙΣ**

$$y = \sinh x = \frac{e^x - e^{-x}}{2}$$

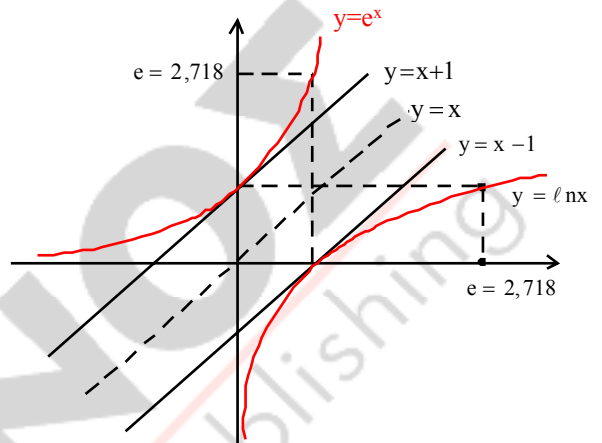
$$y = \cosh x = \frac{e^x + e^{-x}}{2}$$

$$y = \tanh x = \frac{e^x - e^{-x}}{e^x + e^{-x}}$$

$$\cosh^2 x - \sinh^2 x = 1$$

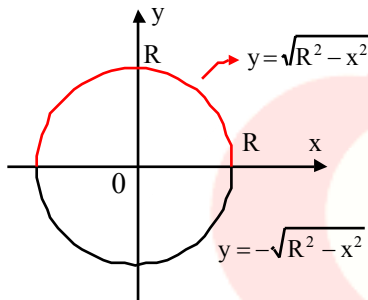


**ΕΚΘΕΤΙΚΗ - ΛΟΓΑΡΙΘΜΙΚΗ**



**ΚΥΚΛΟΣ**

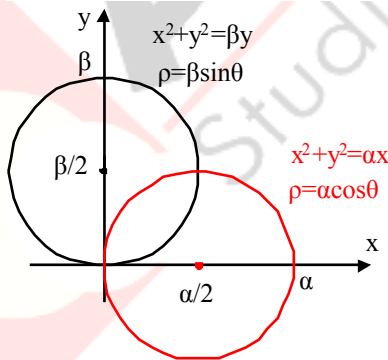
Κύκλος  $x^2 + y^2 = R^2$



Κύκλος μετατοπισμένος

$$x^2 + y^2 = \alpha x \Rightarrow (x - \frac{\alpha}{2})^2 + y^2 = (\frac{\alpha}{2})^2$$

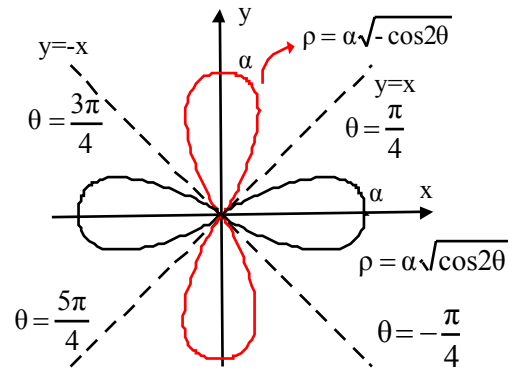
$$x^2 + y^2 = \beta y \Rightarrow x^2 + (y - \frac{\beta}{2})^2 = (\frac{\beta}{2})^2$$



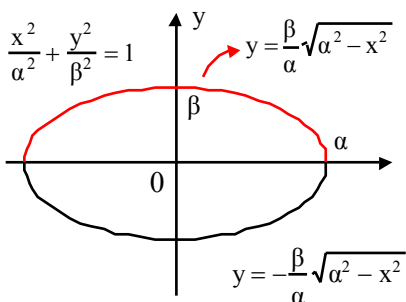
**ΛΗΜΝΙΣΚΟΣ ΒΕΡΝΟΥΛΛΙ**

$$(x^2 + y^2)^2 = a^2(x^2 - y^2)$$

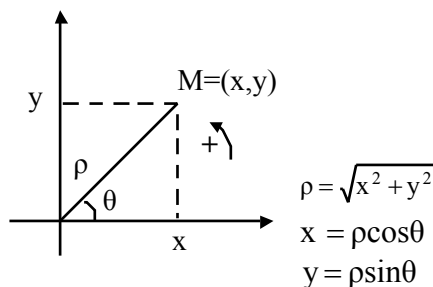
$$(x^2 + y^2)^2 = a^2(y^2 - x^2)$$



**ΕΛΛΙΨΗ**



**ΠΟΛΙΚΕΣ ΣΥΝΤΕΤΑΓΜΕΝΕΣ**



**ΚΥΒΙΚΗ ΔΥΝΑΜΗ**  $y = \alpha x^3$ ,  $\alpha \neq 0$

