$k: (x-m)^2 + (y-n)^2 = r^2$ $S[m,n]$

$E: \frac{(x-m)^2}{a^2} + \frac{(y-n)^2}{b^2} = 1$ $S[m,n]$

$H: -\frac{(x-m)^2}{a^2} + \frac{(y-n)^2}{b^2} = 1$ $S[m,n]$

$P: (y-v_2)^2 = \pm 2p(x-v_1)$

$(x-v_1)^2 = \pm 2p(y-v_2)$