Transformations on Conic sections

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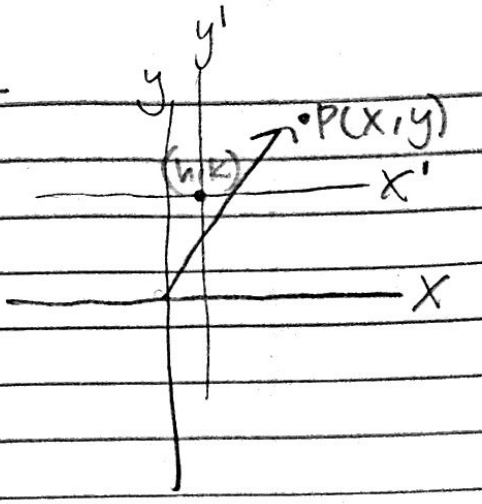
$x' = x - h$
$y' = y - k$

$x = x' + h$
$y = y' + k$



Eliminating 1st degree terms means eliminating things to the 1st power
ex) $x \rightarrow$ 1st deg $\quad x^2 \rightarrow$ 2nd deg
$xy \rightarrow$ 2nd deg

Constant = everything w/o an x or y

If an xy term in original equ → means rotated

$x = \cos\theta x' + \sin\theta y'$
$y = -\sin\theta x' + \cos\theta y'$

points rotate (θ), axes rotate ($-\theta$)

after plug in and get simplified equ, it is on the x' y' axes, draw on rotated x' y' axes

can transform pts from x' y' axis back to x y w/ same equations

If need to transform a line back, use

$x' = \cos\theta x' - \sin\theta y'$
$y' = \sin\theta x' + \cos\theta y'$