Origin symmetry

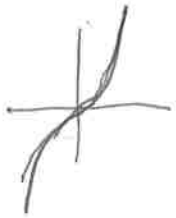
- reflected twice (about both x and y axes)
- replacing both x with -x and y with -y results in an equivalent equation
- An example:

$y = x^3$ ← same → Replace $-y = (-x)^3 = -x^3$

$-y = -x^3$

$y = x^3$

y-axis x-axis



Ex c Test each equation for ~~even~~, ~~odd~~, and origin symmetry (it's possible there is no symmetry).

	y-axis	x-axis	origin
$y = 1/x$	$y = \frac{1}{-x}$ no	$-y = 1/x$ no	$-y = 1/-x$ $y = 1/x$ yes
$y = x^2 + 2x + 4$	$y = (-x)^2 + 2(-x) + 4$ $y = x^2 - 2x + 4$ no	$-y = x^2 + 2x + 4$ no	$-y = x^2 - 2x + 4$ no
$y = x^4 + 2x^2$	$y = (-x)^4 + 2(-x)^2$ $= x^4 + 2x^2$ yes	no	no
$x^2 + y^2 = 9$	$(-x)^2 + y^2 = 9$ $x^2 + y^2 = 9$ yes	$x^2 + (-y)^2 = 9$ $x^2 + y^2 = 9$ yes	$(-x)^2 + (-y)^2 = 9$ $x^2 + y^2 = 9$ yes
$y = x^5$	$y = (-x)^5$ $y = -x^5$ no	$-y = x^5$ no	$-y = -x^5$ $y = x^5$ yes