Relationships between Functions: Three Kinds of Reflection

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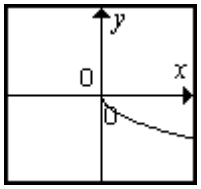
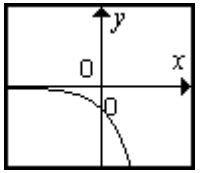
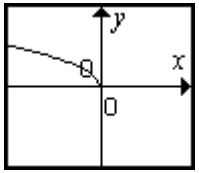
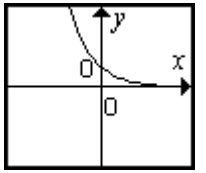
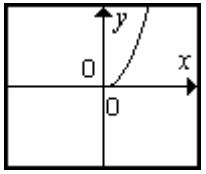
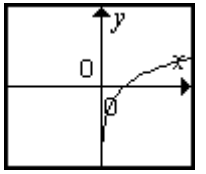
Try not to confuse the concepts of reflection and of symmetry. Reflection compares the graph of one function with the graph of **another function**. Symmetry (odd = origin, even = y-axis and x-axis) compares the graph of part of one function with another part of the **same** function.

Reflection about the	**g(x) is the reflection of f(x) if:**	**Original function: $y = \sqrt{x}$**		**Original function: $y = e^x$**	
x-axis	$g(x) = -f(x)$	$y = -\sqrt{x}$		$y = -e^x$	
y-axis	$g(x) = f(-x)$	$y = \sqrt{-x}$		$y = e^{-x}$	
line y = x	$f(g(x)) = x$ & $g(f(x)) = x$ *	$x = \sqrt{y}$, i.e. $y = x^2$, for $x \geq 0$		$x = e^y$, i.e. $y = \ln x$	

* In this case g(x) & f(x) are said to be **inverses.**