

# Transformation von Funktionen

Spiegelung an der x- / y-Achse  
 Verschiebung in x- / y-Richtung  
 Streckung in x- / y-Richtung

## Spiegelung

Original

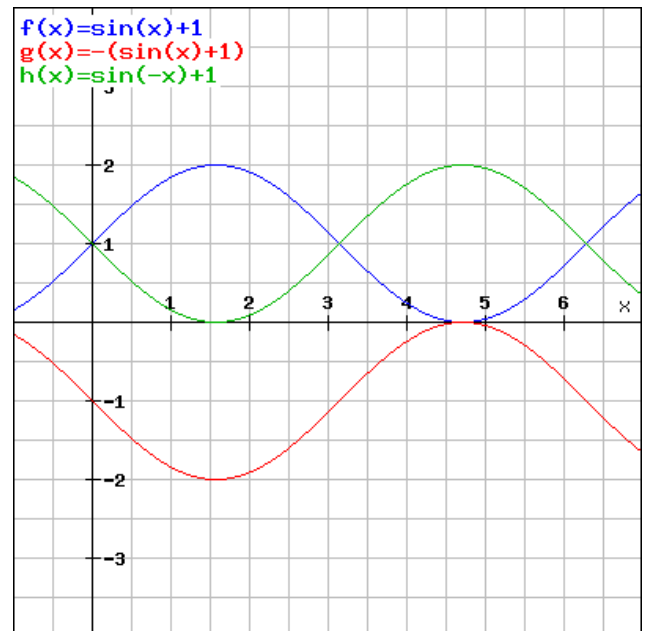
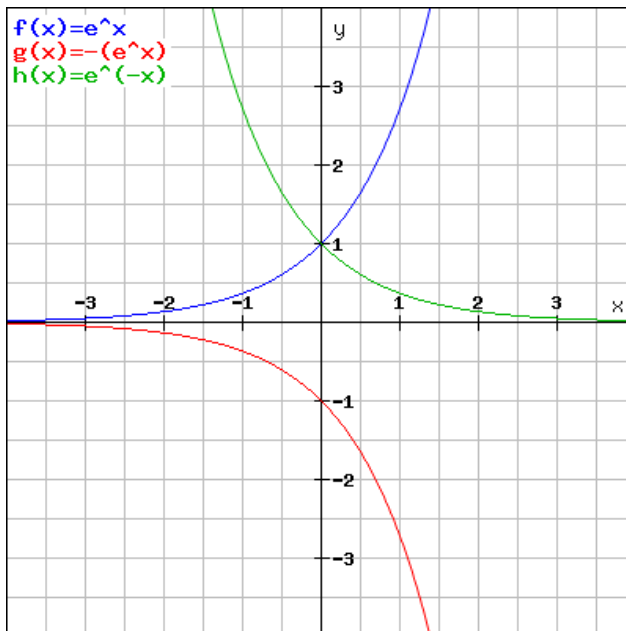
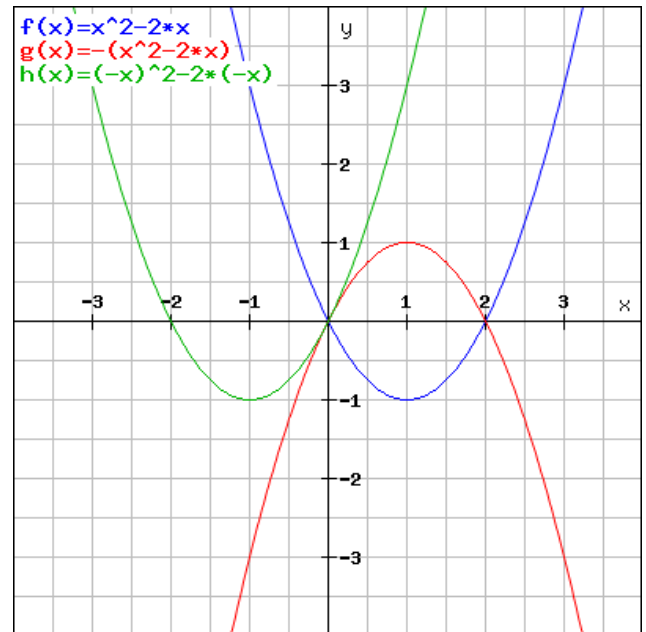
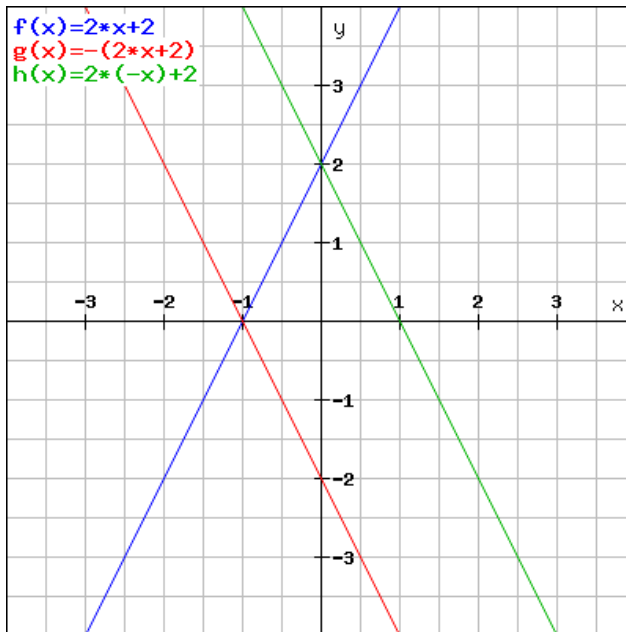
gespiegelt an der x-Achse

gespiegelt an der y-Achse

$f(x)$

$g(x) = -f(x)$

$h(x) = f(-x)$



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## Verschiebung

Original

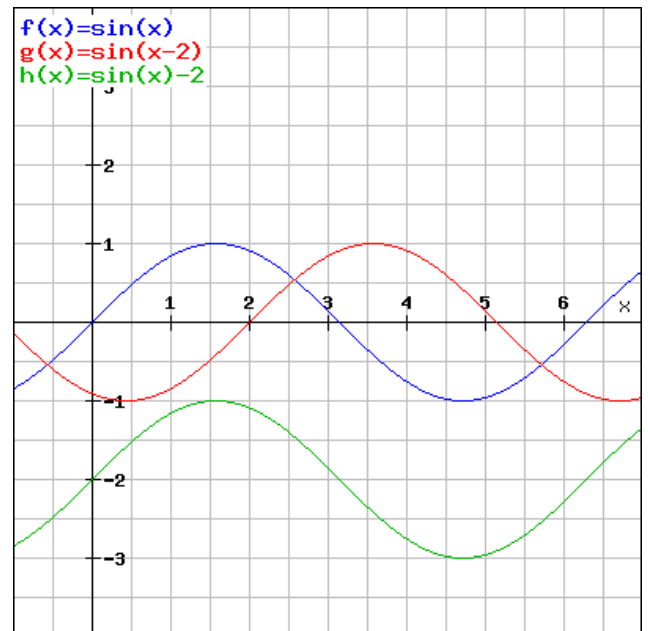
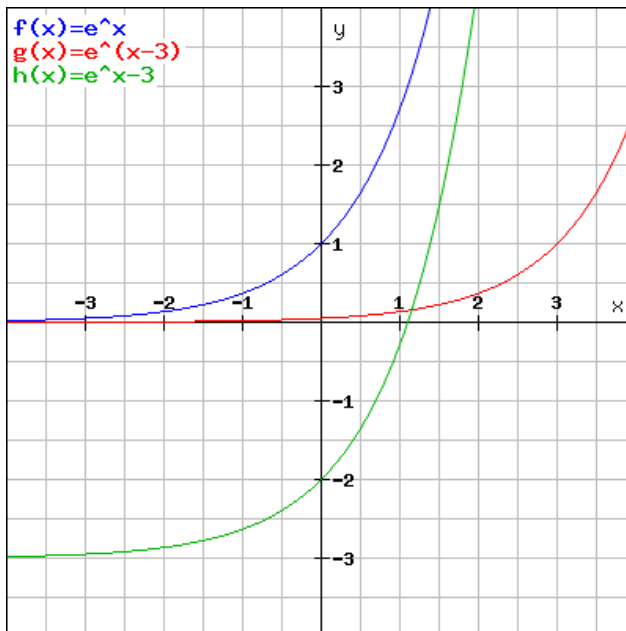
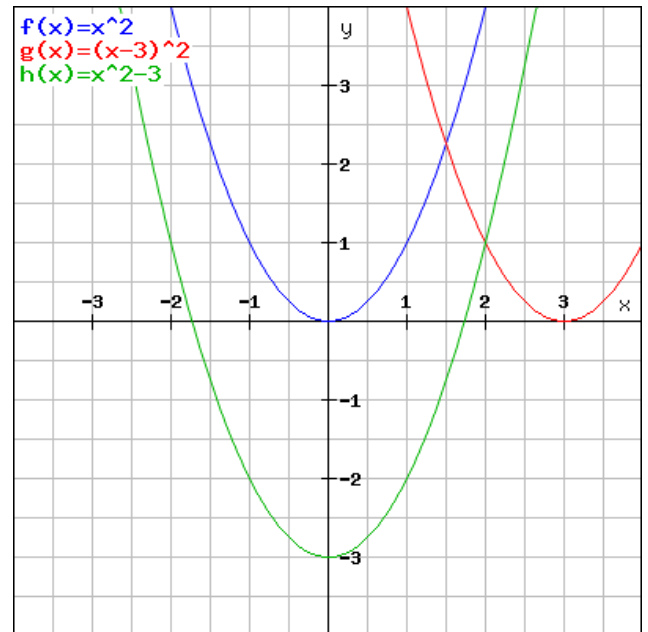
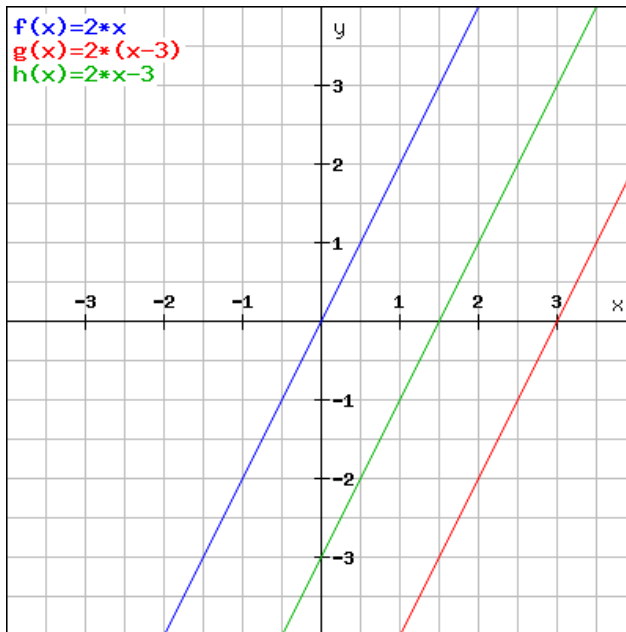
verschoben in x-Richtung

verschoben in y-Richtung

$f(x)$

$g(x) = f(x-d)$

$h(x) = f(x)+e$



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## Streckung

Original

gestreckt in x-Richtung

gestreckt in y-Richtung

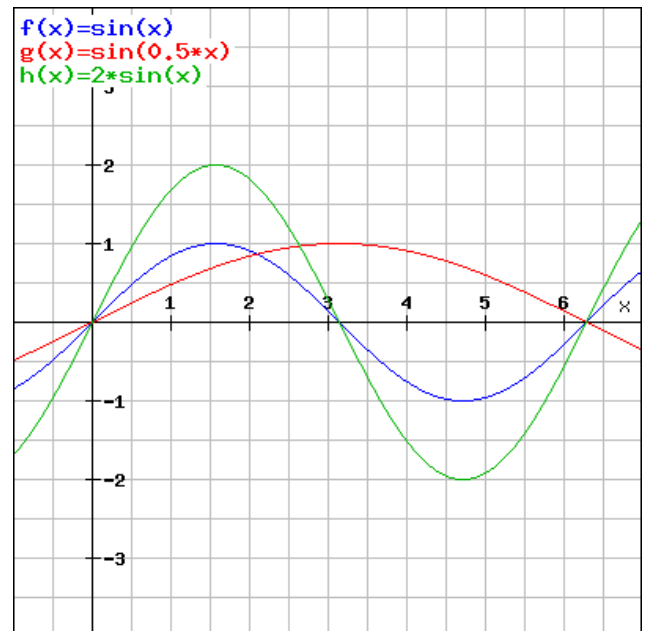
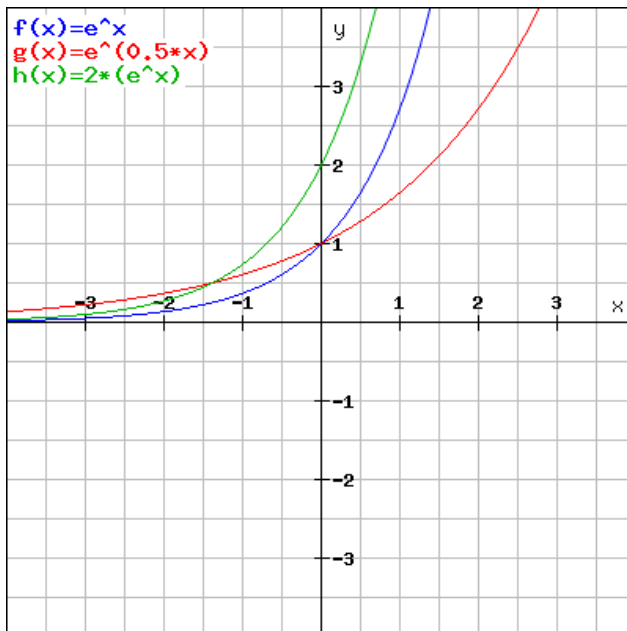
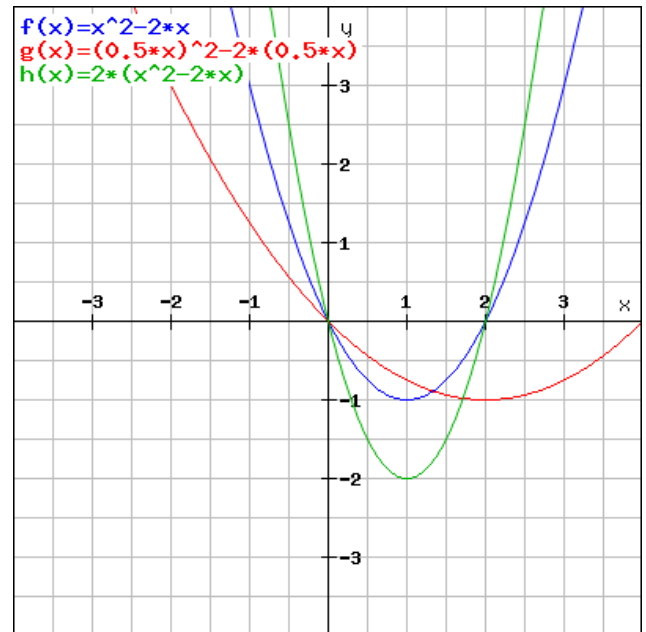
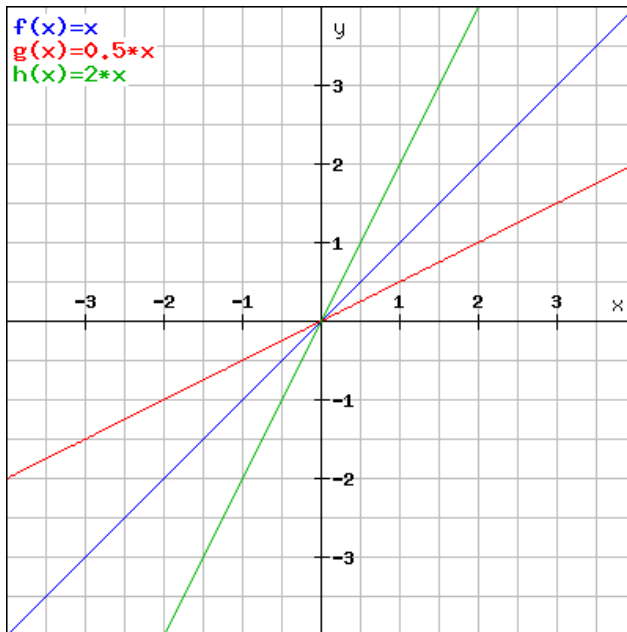
$f(x)$

$g(x) = f(k \cdot x)$

$k < 1$

$h(x) = a \cdot f(x)$

$a > 1$



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## Stauchung

Original

gestreckt in x-Richtung

gestreckt in y-Richtung

$f(x)$

$g(x) = f(k \cdot x)$

$k > 1$

$h(x) = a \cdot f(x)$

$a < 1$

