## Review of Transformations

## Parent function $f(x)=x^{2}$ <br> $$
g(x)=\mathbf{a}(x+h)^{2}+c
$$

" $\mathbf{c}$ " is a vertical translation

upwards for c > 0 downwards for $\mathrm{c}<0$


"h" is a horizontal translation
to the left for $\mathrm{h}>0$
to the right for $\mathrm{h}<0$

"a" is a scaling with
$f(\mathrm{x})=a \mathrm{x}^{2}$

$0<\mathrm{a}<1$ making the graph wider $a>1$ making the graph narrower $\mathrm{a}<0$ inverting the graph

