

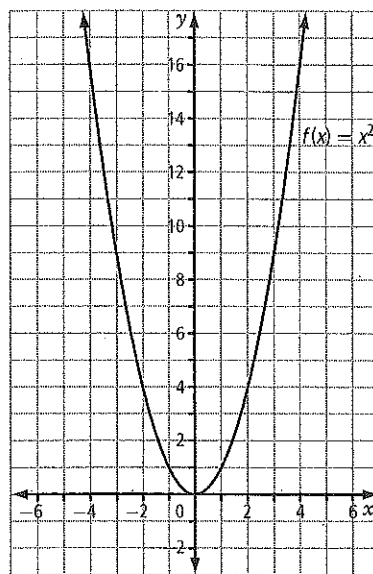
PC 12 Reflected & Stretch

3. Given $f(x) = x^2$, graph the following transformations. Give the equation and mapping notation for each transformation.

a) vertical stretch by a factor of $\frac{1}{4}$

Key points: (x, y) maps to (x, ay)

(x, y)	\rightarrow	
$(0, 0)$	\rightarrow	
$(\pm 1, 1)$	\rightarrow	
$(\pm 2, 4)$	\rightarrow	
$(\pm 3, 9)$	\rightarrow	
$(\pm 4, 16)$	\rightarrow	

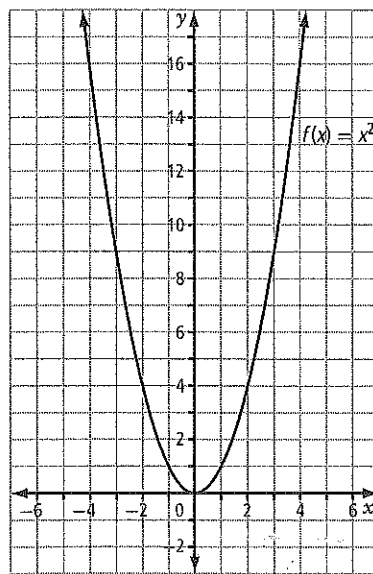


Equation: _____

b) horizontal stretch by a factor of 2 ($b =$ reciprocal of the stretch factor)

Key points: (x, y) maps to $(\frac{1}{b}x, y)$

(x, y)	\rightarrow	
$(0, 0)$	\rightarrow	
$(\pm 1, 1)$	\rightarrow	
$(\pm 2, 4)$	\rightarrow	
$(\pm 3, 9)$	\rightarrow	
$(\pm 4, 16)$	\rightarrow	



Equation: _____

4. Compare your answers in parts a) and b) of #3.

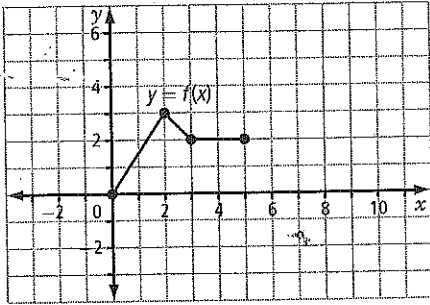
a) Show algebraically why both transformations result in the same transformed function.

b) Give another example of a pair of horizontal and vertical stretches that would result in the same transformed function.

Apply

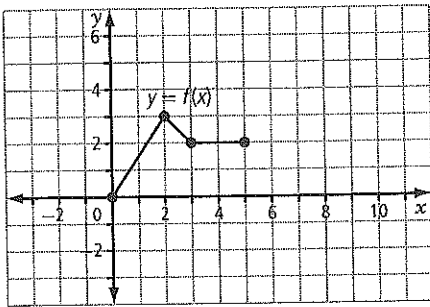
5. Write an equation representing each of the following transformations of $y = f(x)$. Then, graph each transformation.

- a) vertical stretch by a factor of 2



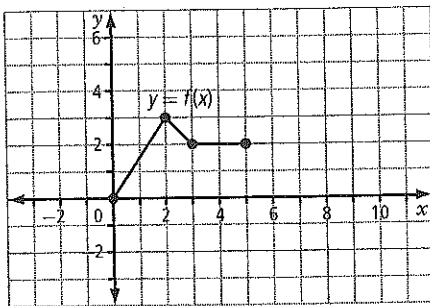
Equation of transformed function:

- b) reflection in the x -axis and horizontal stretch by a factor of 2



Equation of transformed function:

- c) reflection in the y -axis and horizontal stretch by a factor of $\frac{1}{2}$



Equation of transformed function:

Recall that $y = f(bx)$ results in a horizontal stretch of $\frac{1}{|b|}$.