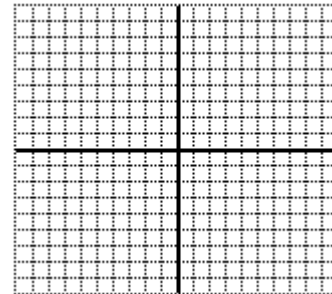
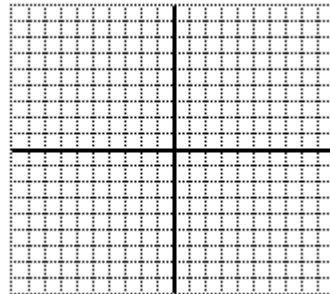
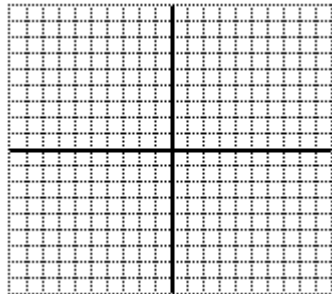
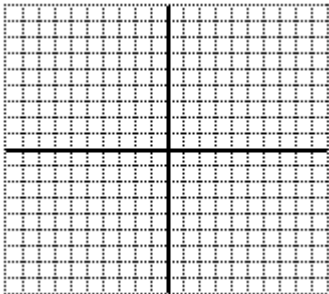


TRANSFORMATIONS OF FUNCTIONS

Graph each set of functions on the same axis.

$f(x) = x$	$f(x) = x+5$	$f(x) = x-5$
$f(x) = x^2$	$f(x) = (x+5)^2$	$f(x) = (x-5)^2$
$f(x) = \sqrt{x}$	$f(x) = \sqrt{x+5}$	$f(x) = \sqrt{x-5}$
$f(x) = \frac{1}{x}$	$f(x) = \frac{1}{x+5}$	$f(x) = \frac{1}{x-5}$



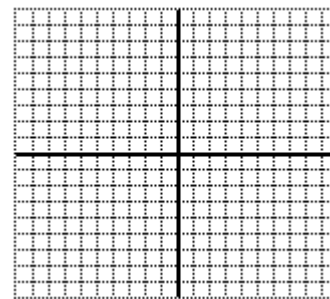
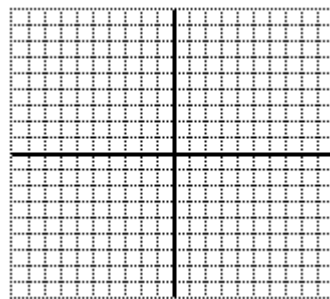
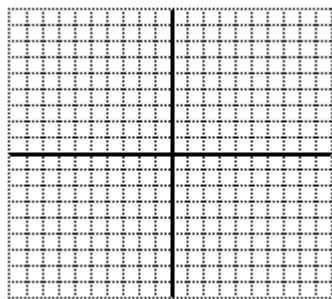
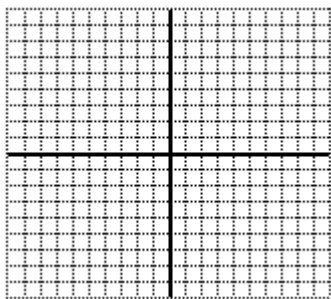
What is the effect of each of the transformations on the graph of $f(x)$?

- ◆ $f(x+5)$
- ◆ $f(x-5)$

TRANSFORMATIONS OF FUNCTIONS

Graph each set of functions on the same axis. Determine the equation of the new function under the given transformation

	$f(x) + 4$	$f(x) - 4$
$f(x) = x$		
$f(x) = x^2$		
$f(x) = \sqrt{x}$		
$f(x) = \frac{1}{x}$		
$f(x) = x^3$		



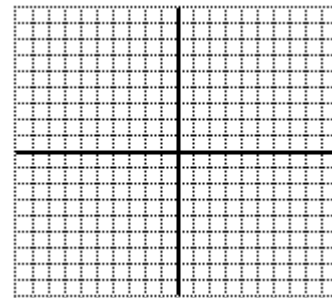
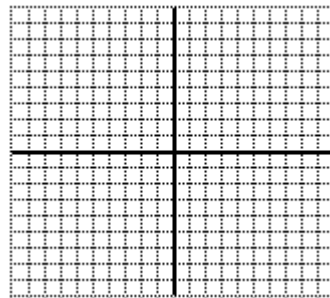
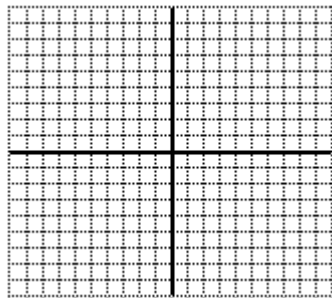
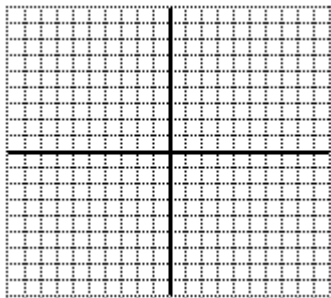
What is the effect of each of the transformations on the graph of $f(x)$?

- ◆ $f(x) + 4$
- ◆ $f(x) - 4$

TRANSFORMATIONS OF FUNCTIONS

Graph each set of functions on the same axis. Determine the equation of the new function under the given transformation

	$f(2x)$	$f(0.5x)$
$f(x) = x$		
$f(x) = x^2$		
$f(x) = \sqrt{x}$		
$f(x) = \frac{1}{x}$		
$f(x) = x^3$		



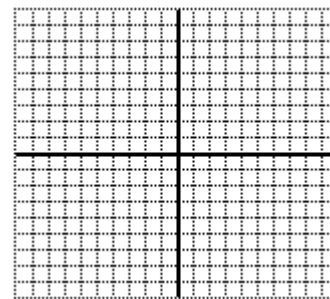
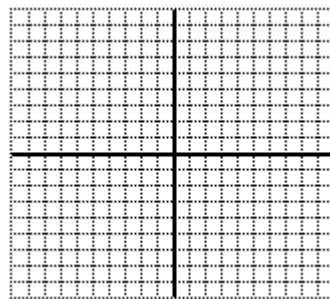
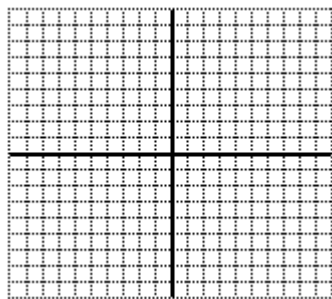
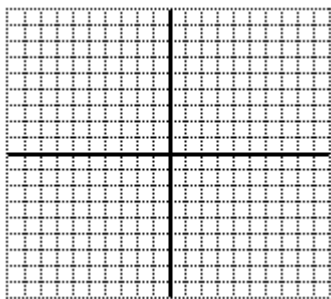
What is the effect of each of the transformations on the graph of $f(x)$?

- ◆ $f(2x)$
- ◆ $f(0.5x)$

TRANSFORMATIONS OF FUNCTIONS

Graph each set of functions on the same axis. Determine the equation of the new function under the given transformation

	$4f(x)$	$0.25f(x)$
$f(x) = x$		
$f(x) = x^2$		
$f(x) = \sqrt{x}$		
$f(x) = \frac{1}{x}$		
$f(x) = x^3$		



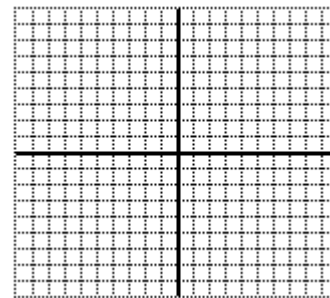
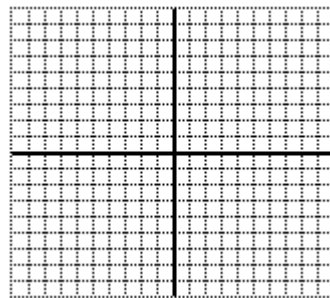
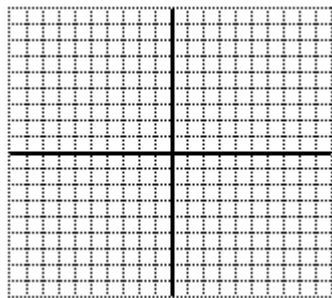
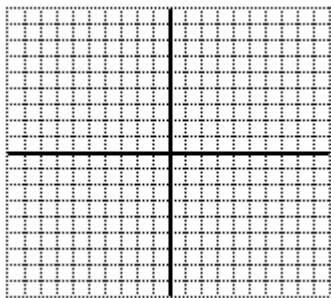
What is the effect of each of the transformations on the graph of $f(x)$?

- ◆ $4f(x)$
- ◆ $0.25f(x)$

TRANSFORMATIONS OF FUNCTIONS

Graph each set of functions on the same axis. Determine the equation of the new function under the given transformation

	$-f(x)$	$f(-x)$
$f(x) = x$		
$f(x) = x^2$		
$f(x) = \sqrt{x}$		
$f(x) = \frac{1}{x}$		
$f(x) = x^3$		



What is the effect of each of the transformations on the graph of $f(x)$?

- ◆ $-f(x)$
- ◆ $f(-x)$

Horizontal & vertical translations

Translation	Mathematical Form	Effect on the Graph
Vertical	$y = f(x)+k$	
	$y = f(x) - k$	
Horizontal	$y = f(x+h)$	
	$y = f(x-h)$	

Stretches and Compressions

Stretch	Mathematical Form	Effect on the Graph
Vertical	$y = af(x)$	
	$y = \frac{1}{a} f(x)$	
Horizontal	$y = f(x)$	
	$y = f\left(\frac{1}{a} x\right)$	

Reflections

Stretch	Mathematical Form	Effect on the Graph
Vertical	$y = -f(x)$	
Horizontal	$y = f(-x)$	