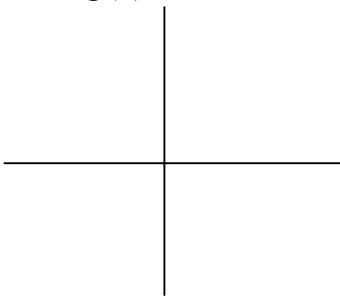


# TRANSFORMATION STUDENT GRAPHING WORKSHEET

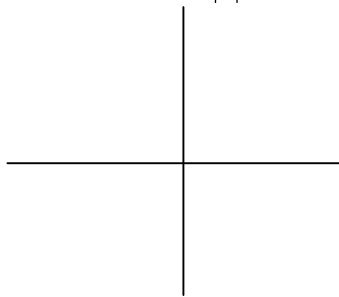
Sketch the following pairs of functions on the same graph. Answer the questions following each group of graphs. Use a window of  $[-5, 5]$  and  $[-5, 5]$ . Your calculator should be in radian mode.

## Group I

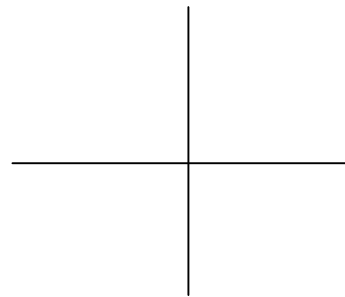
A)  $f(x) = x^2$   
 $g(x) = x^2 + 3$



B)  $f(x) = |x|$   
 $g(x) = |x| - 4$



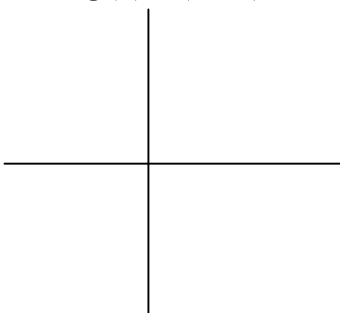
C)  $f(x) = \cos(x)$   
 $g(x) = \cos(x) + 2$



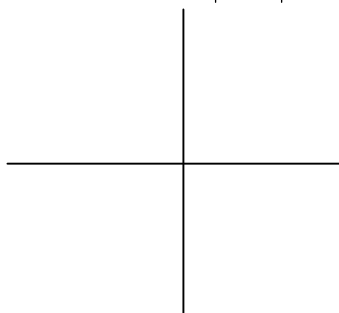
What happened to the graph of  $f(x)$  to produce the graph of  $g(x)$ ?

## Group II

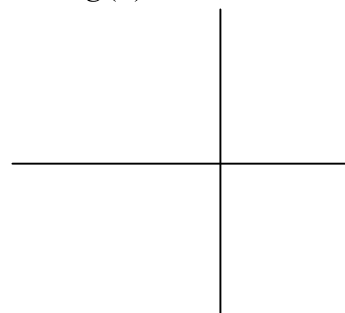
A)  $f(x) = x^2$   
 $g(x) = (x - 2)^2$



B)  $f(x) = |x|$   
 $g(x) = |x + 3|$



C)  $f(x) = \sqrt{x}$   
 $g(x) = \sqrt{x + 4}$



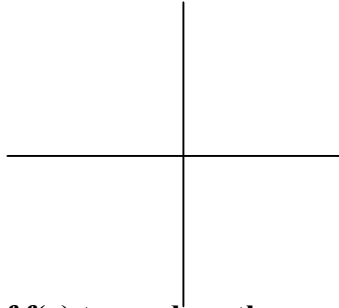
What happened to the graph of  $f(x)$  to produce the graph of  $g(x)$ ?

**Group III**

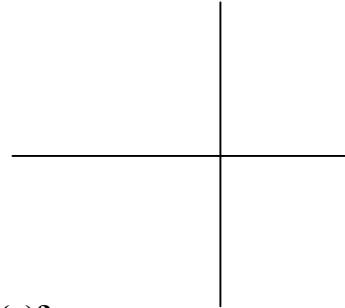
A)  $f(x) = \text{int}(x)$   
 $g(x) = .5 \text{int}(x)$



B)  $f(x) = \cos(x)$   
 $g(x) = 3 \cos(x)$



C)  $f(x) = \sqrt{x}$   
 $g(x) = 2\sqrt{x}$



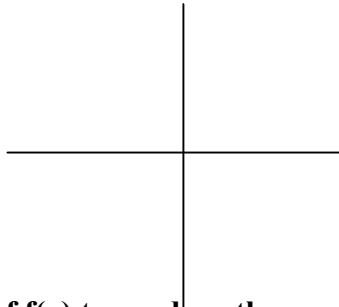
**What happened to the graph of f(x) to produce the graph of g(x)?**

**Group IV**

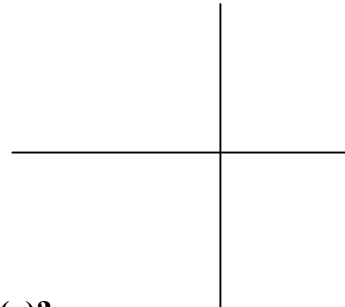
A)  $f(x) = x^2$   
 $g(x) = (3x)^2$



B)  $f(x) = \text{int}(x)$   
 $g(x) = \text{int}(2x)$



C)  $f(x) = \cos(x)$   
 $g(x) = \cos(0.5x)$



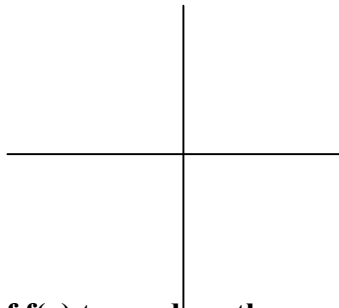
**What happened to the graph of f(x) to produce the graph of g(x)?**

**Group V**

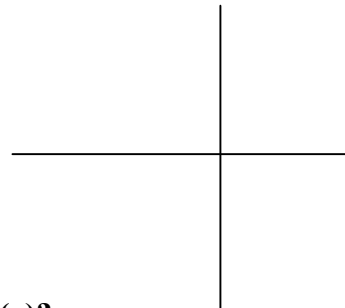
A)  $f(x) = x^2$   
 $g(x) = -(x)^2$



B)  $f(x) = \text{int}(x)$   
 $g(x) = -\text{int}(x)$



C)  $f(x) = \cos(x)$   
 $g(x) = -\cos(x)$

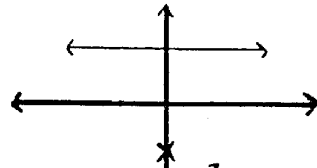


**What happened to the graph of f(x) to produce the graph of g(x)?**

## Parent Functions

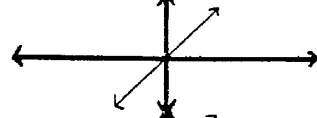
Constant:

$$f(x) = a$$



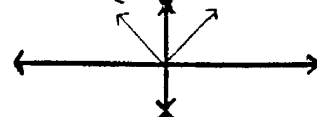
Identity:

$$f(x) = x$$



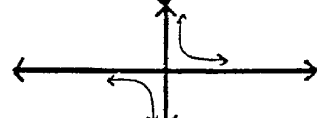
Absolute Value:

$$f(x) = |x|$$



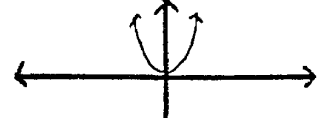
Reciprocal:

$$f(x) = 1/x$$



Quadratic:

$$f(x) = x^2$$



Power:

$$f(x) = x^n$$

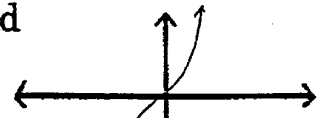
n even

n odd



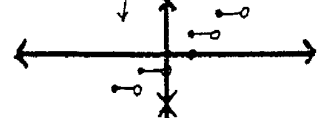
Cubic:

$$f(x) = x^3$$



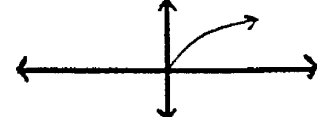
Greatest Integer:

$$f(x) = [x]$$



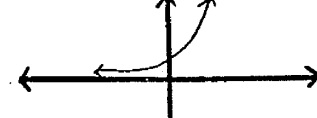
Square Root:

$$f(x) = \sqrt{x}$$



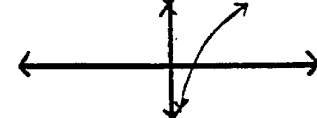
Exponential:

$$f(x) = a^x$$



Logarithmic:

$$f(x) = \log_a x$$



Trigonometric:

$$f(x) = \sin x$$

$$f(x) = \cos x$$

$$f(x) = \tan x$$

