

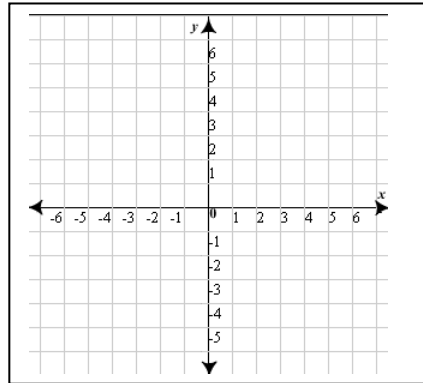
Trigonometry/PreCalculus Level 1
 Lesson 1.5
 Discovering Transformations

Please graph the parent function and the transformation on the same coordinate plane. Use your graphing calculator to generate your graphs. Describe each transformation from f to g .

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

$g(x) = (x + 2)^2$

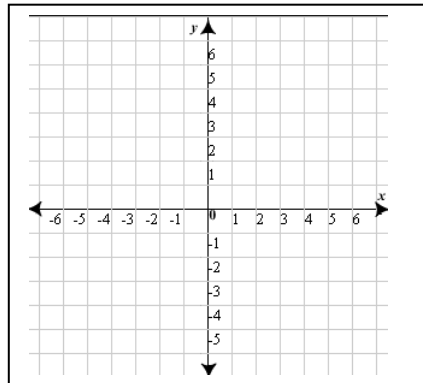
transformation: _____



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

$g(x) = -(x)^3$

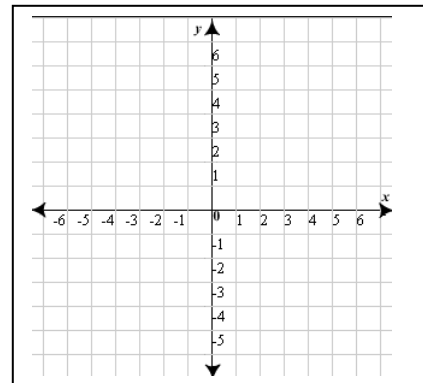
transformation: _____



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

$g(x) = \sqrt{-x}$

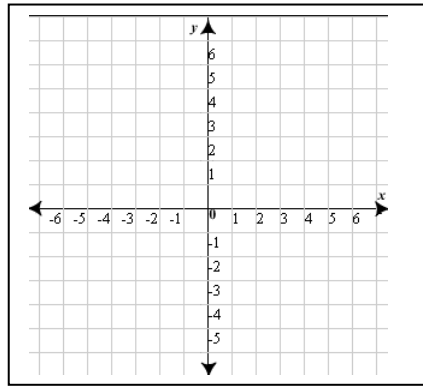
transformation: _____



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

$g(x) = 2x^2$

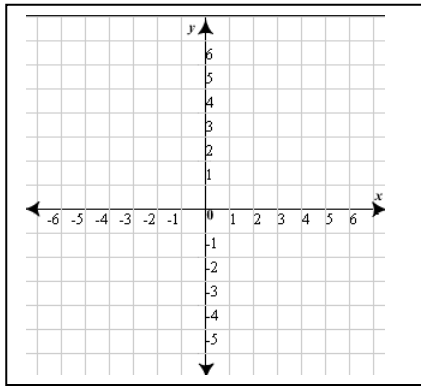
transformation: _____



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

$g(x) = (x - 2)^3$

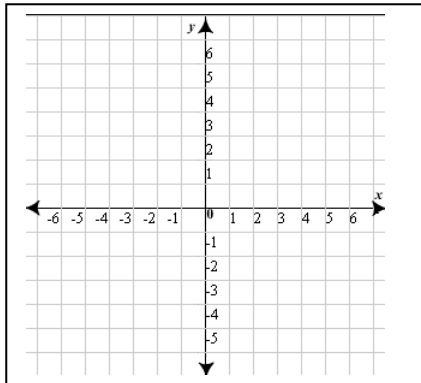
transformation: _____



6. $f(x) = |x|$

$g(x) = |x - 3| - 1$

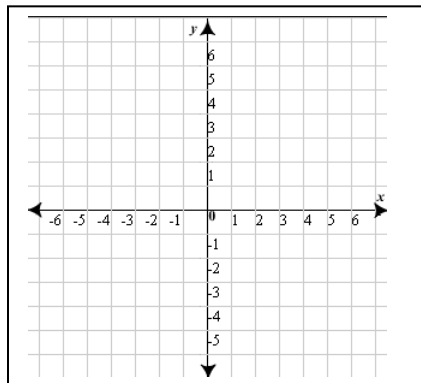
transformation: _____



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

$g(x) = (2x)^2$

transformation: _____



| Function | Transformation of the graph of $f(x)$ |
|-------------------------------|---------------------------------------|
| $f(x) + c$ | |
| $f(x) - c$ | |
| $f(x + c)$ | |
| $f(x - c)$ | |
| $-f(x)$ | |
| $f(-x)$ | |
| $a \cdot f(x)$ if $a > 1$ | |
| $a \cdot f(x)$ if $0 < a < 1$ | |
| $f(ax)$ if $a > 1$ | |
| $f(ax)$ if $0 < a < 1$ | |

Describe each transformation:

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

2) $f(x) = (x + 2)^2 - 1$

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

4) $f(x) = \left(\frac{1}{2}x\right)^2 - 9$

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