NAME_____DATE_____PER._____

# TRANSFORMATIONS OF QUADRATIC FUNCTIONS – Day 3

**For Examples 1 – 7, write an equation of the new function g(x) and describe the effects on the graph of the parent function $f(x) = x^2$.**

| Transformation | g(x) | Effects on Graph of f(x) |
|---|---|---|
| 1) g(x) = f(x) + d, where d = 5 | g(x) = | |
| 2) g(x) = f(x – c), where c = -6 | g(x) = | |
| 3) g(x) = af(x), where a = -0.9 | g(x) = | |
| 4) g(x) = af(x), where a = 3 | g(x) = | |
| 5) g(x) = af(x) + d, where a = 1, d = -1 | g(x) = | |
| 6) g(x) = f(x – c) + d, where c = -5, d = -4 | g(x) = | |
| 7) g(x) = af(x – c) + d, where a = -3, c = d = 2 | g(x) = | |

**If $f(x) = x^2$, write the equation that produces the graph of g(x). Identify the effects on f(x), the new vertex, and axis of symmetry (AOS).**

8) g(x) = 4f(x) + 3

g(x) = _____

Effects on f(x):

9) g(x) = f(x + 9) – 1

g(x) = _____

Effects on f(x):

10) $g(x) = \frac{1}{2}f(x - 2)$

g(x) = _____

Vertex: _____

AOS: _____

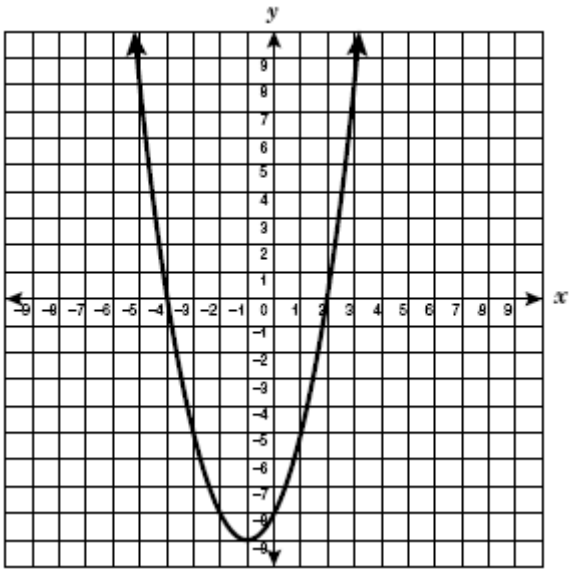
11) g(x) = -f(x) + 4.5

g(x) = _____

Vertex: _____

AOS: _____

12) $f(x) = x^2$ and g(x) is shown below.



Describe the steps that transformed the graph of f(x) to g(x).

Which equation below represents the new function g(x)?

A) $g(x) = (x - 1)^2 - 9$

B) $g(x) = 2(x + 1)^2 - 9$

C) $g(x) = (x - 1)^2 + 9$

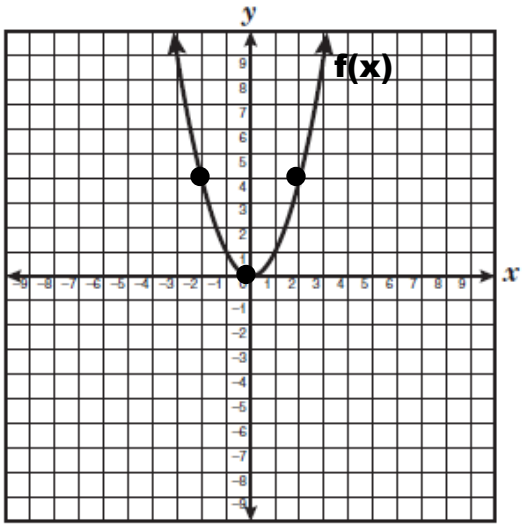
D) $g(x) = (x + 1)^2 - 9$

13) Describe the transformation of the graph of $f(x) = x^2$ that produces the graph of g(x), write the new equation, and graph.

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

g(x) = _____

Effects on f(x):




Vertex of g(x): _____

Axis of Symmetry of g(x): _____

**Factor completely.**

| 14. $x^2 + 5x - 84$ | 15. $12x^2 + 3x$ | 16. $x^2 - 1$ |
|---|---|---|