NAME **ANSWER KEY**   DATE_____   PERIOD **ALL**

Translations of Quadratic Functions

Describe how the graph of each function is related to the graph of $f(x) = x^2$.

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

shift up 2

2. $g(x) = (x - 1)^2$

shift right 1

3. $g(x) = x^2 - 8$

shift down 8

4. $g(x) = 7x^2$

stretch by a factor of 7

5. $g(x) = \frac{1}{5}x^2$

shrink by a factor of 5

6. $g(x) = -6x^2$

· stretch by a factor of 6
· reflect over x-axis

7. $g(x) = -x^2 + 3$

· shift up 3
· reflect over x-axis

8. $g(x) = 5 - \frac{1}{5}x^2 = -\frac{1}{5}x^2 + 5$

· shift up 5
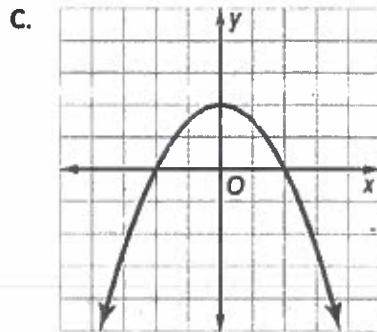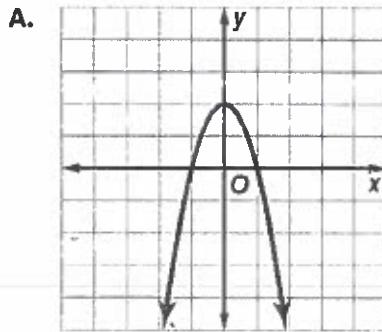· shrink by factor of 5
· reflect over x-axis

9. $g(x) = 4(x - 1)^2$

· stretch by factor of 4
· shift right 1

Describe how the graph of each function is related to the graph of $f(x) = x^2$. Then, **match** each equation to its **graph**.
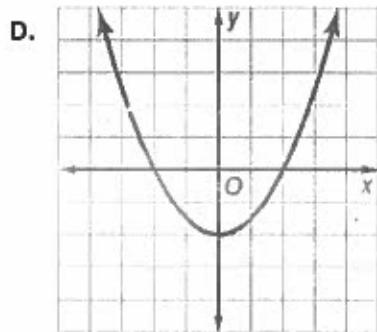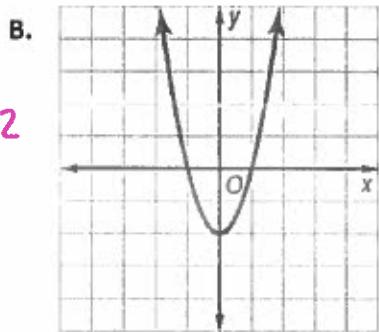
B **10.** $y = 2x^2 - 2$

· down 2 (shift)
· stretch by factor of 2

D **11.** $y = \frac{1}{2}x^2 - 2$

· down 2 (shift)
· shrink by factor of 2

C **12.** $y = -\frac{1}{2}x^2 + 2$

· shift up 2
· shrink by factor of 2
· reflect over x-axis

A **13.** $y = -2x^2 + 2$

· shift up 2
· stretch by factor of 2
· reflect over x-axis

A.

C.

B.

D.