TRANSFORMATIONS OF QUADRATIC FUNCTIONS – Day 1

Match each graph to its corresponding equation.

_____1. $y = x^2$

_____2. $y = -x^2$

_____3. $y = \frac{1}{3}x^2$

_____4. $y = -\frac{1}{3}x^2$

_____5. $y = 3x^2$

_____6. $y = -3x^2$

_____7. $y = x^2 + 3$

_____8. $y = x^2 - 3$

_____9. $y = -x^2 + 3$

_____10. $y = -x^2 - 3$

State the domain/range of graphs B, D, and H.
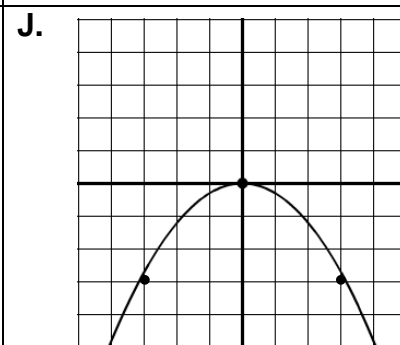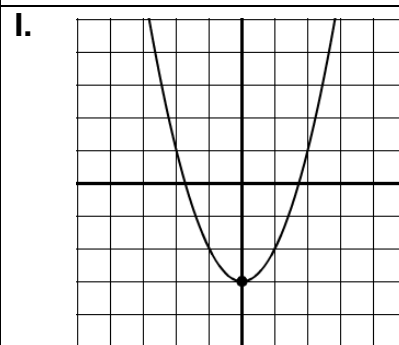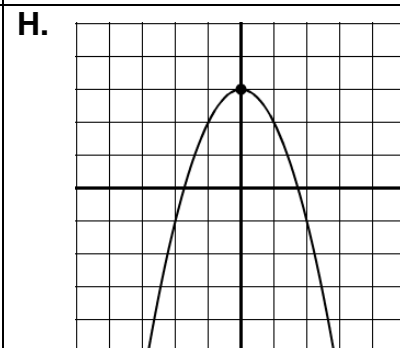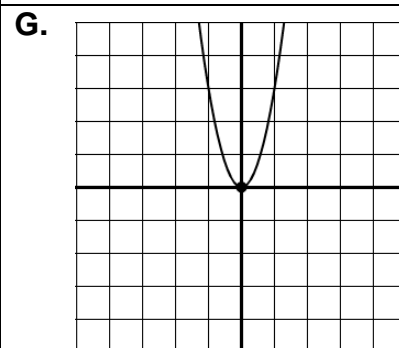
Graph B

D: _____

R: _____

Graph D

D: _____

R: _____

Graph H

D: _____

R: _____

A.

B.

C.

D.

E.

F.

G.

H.

I.

J.
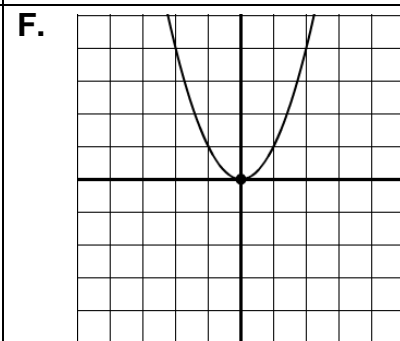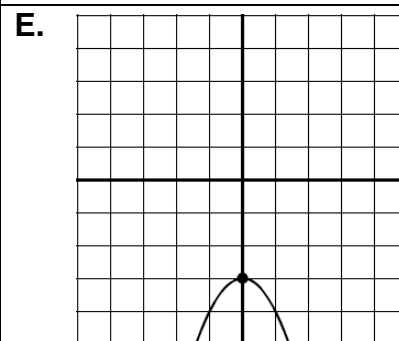
11. How would the graph of the functions $y = x^2 + 1$ be affected if the functions were changed to $y = x^2 + 6$?
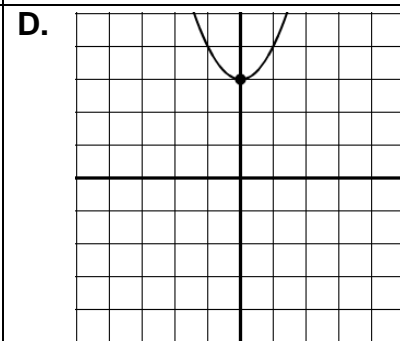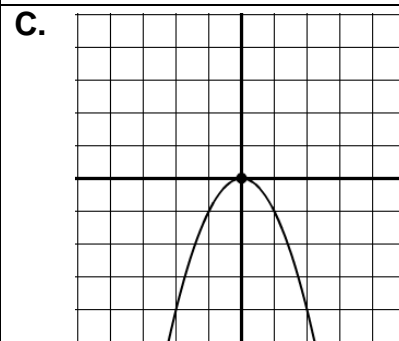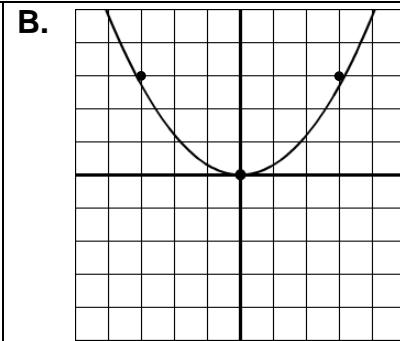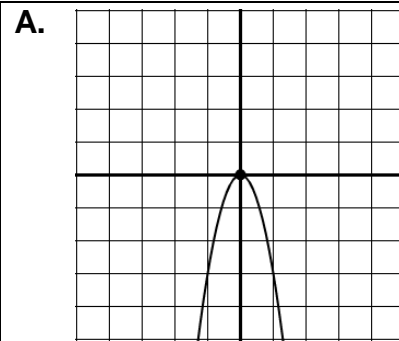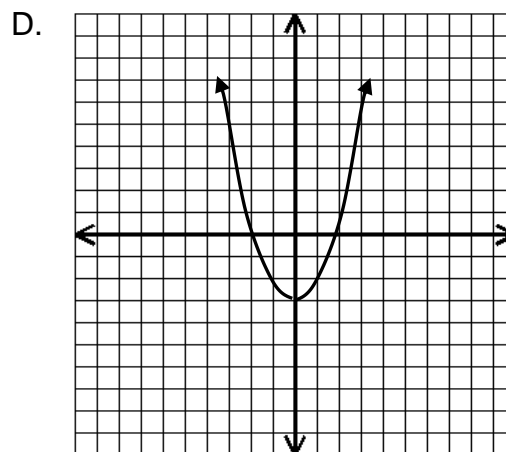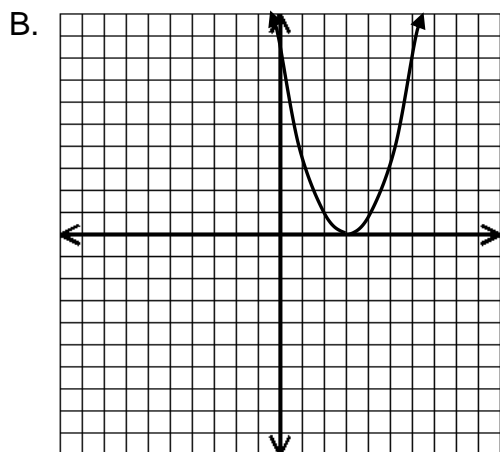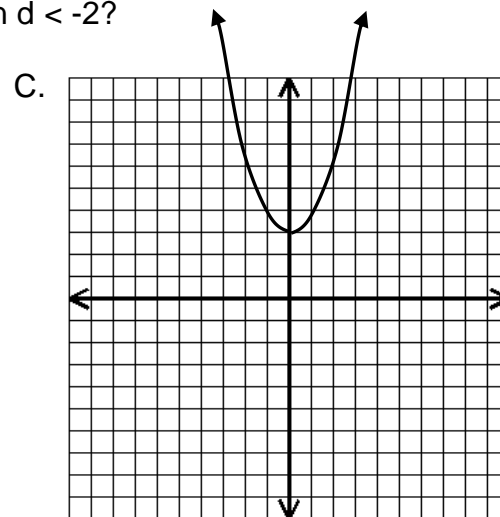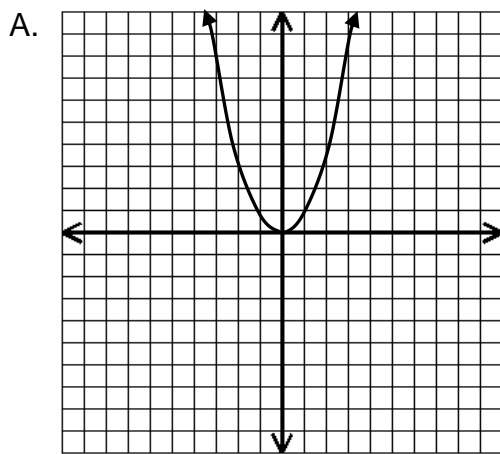
   A. The graph would shift 5 units down.

   B. The graph would shift 5 units up.

   C. The graph would shift 5 units to the left.

   D. The graph would shift 5 units to the right.

12. Which graph shows a function $y = x^2 + d$ when $d < -2$?

A.

C.

B.

D.

13. How does the graph of $y = 4x^2 - 2$ compare with the graph of $y = 4x^2 + 7$?

A. The graph of $y = 4x^2 - 2$ is 9 units below the graph of $y = 4x^2 + 7$.

B. The graph of $y = 4x^2 - 2$ is 5 units to the right of the graph of $y = 4x^2 + 7$.

C. The graph of $y = 4x^2 - 2$ is 5 units above the graph of $y = 4x^2 + 7$.

D. The graph of $y = 4x^2 - 2$ is 9 units to the left of the graph of $y = 4x^2 + 7$.

14. If the graph of $y = \dfrac{3}{5}x^2 - 5$ is translated up 8 units, which of the following equations represents the resulting graph?

A. $y = \dfrac{3}{5}x^2 - 3$

C. $y = \dfrac{3}{5}x^2 + 13$

B. $y = \dfrac{3}{5}x^2 + 3$

D. $y = \dfrac{3}{5}x^2 - 13$

15. During halftime of a basketball game, a slingshot launches T-shirts at the crowd. A T-shirt is launched with an initial upward velocity of 72 ft/s. The T-shirt is caught 35 ft above the court. The function $h = -16t^2 + 72t + 5$ gives the T-shirt's height h, in feet, after t seconds. What is the range of the function that models the height of the T-shirt over time?

A. $h \geq 5$

C. $h \leq 86$

B. $5 \leq h \leq 86$

D. $0 \leq h \leq 86$