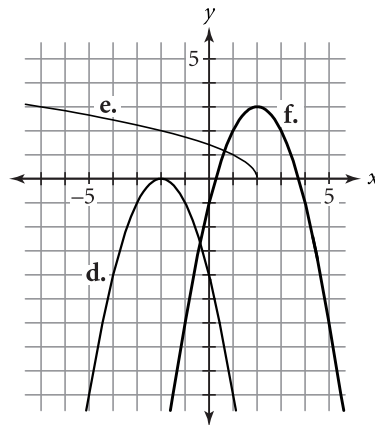
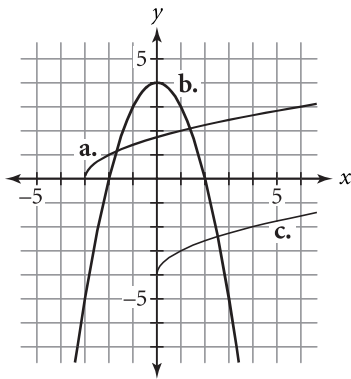


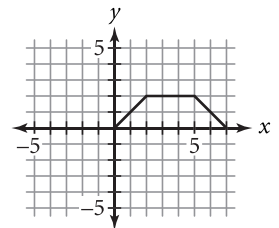
Lesson 4.5 • Reflections and the Square Root Family

Name _____ Period _____ Date _____

- Describe what happens to the graph of $y = \sqrt{x}$ in each of the following situations.
 - x is replaced with $(x + 6)$.
 - y is replaced with $(y - 5)$.
 - y is replaced with $(y + 1)$.
 - x is replaced with $(x - 8)$.
- Each graph below is a transformation of the graph of either the parent function $y = x^2$ or the parent function $y = \sqrt{x}$. Write an equation for each graph.



- Given the graph of $y = f(x)$, draw a graph of each of these related functions.
 - $y = -f(x)$
 - $y = f(-x)$
 - $y = -f(-x)$
- Solve each equation for y to get two separate functions that could be entered into a graphing calculator. In each case, label the equations as Y_1 and Y_2 . Then combine both functions to create a single relation that involves x and y .



- $(y + 2)^2 = x$
 - $y^2 = x + 2$
 - $(y + 1)^2 = x - 6$
- Use the function $h = -4.9t^2 + d$ to answer each question. (Round your answers to the nearest tenth of a second.)
 - If a ball is dropped from a height of 500 meters, how long will it take the ball to reach a height of 200 meters?
 - If a ball is dropped from a height of 175 meters, how long will it take the ball to reach a height of 50 meters?
 - If a ball is dropped from a height of 90 meters, how long will it take the ball to hit the ground?