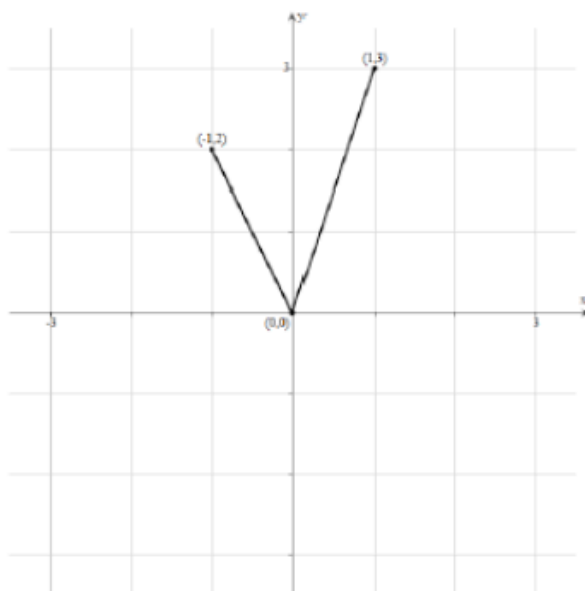


- Find functions f and g such that $(f \circ g)(x) = (x + 1)^2$
- The graph of a piecewise function is given. Write a definition for the function that best describes this graph.



- Find the function that is finally graphed after the following transformations are applied to the graph of $y = \sqrt{x}$ in the order listed.

(a) Shift up 2 units

(b) Reflect about the x -axis

- Decide whether the following statement is true or false.

(a) To obtain the graph of $f(x) = x^3 + 4$ shift the graph of $y = x^3$ vertically up 4 units.

(b) To obtain the graph of $f(x) = |x - 3|$ shift the graph of $y = |x|$ horizontally to the right 3 units.

(c) The graph of $y = -f(x)$ is the reflection about the x -axis of the graph of $y = f(x)$.

- Find the domain of $f(x)$ and evaluate the following for $f(x)$ if $f(x) = \begin{cases} |x|, & x \leq -2 \\ x + 2, & -2 < x < 4, \\ x^3, & x \geq 4 \end{cases}$

(a) $f(5)$

(b) $f(-2)$

(c) $f(0)$

(d) $f(-3)$

6. For each function listed below:

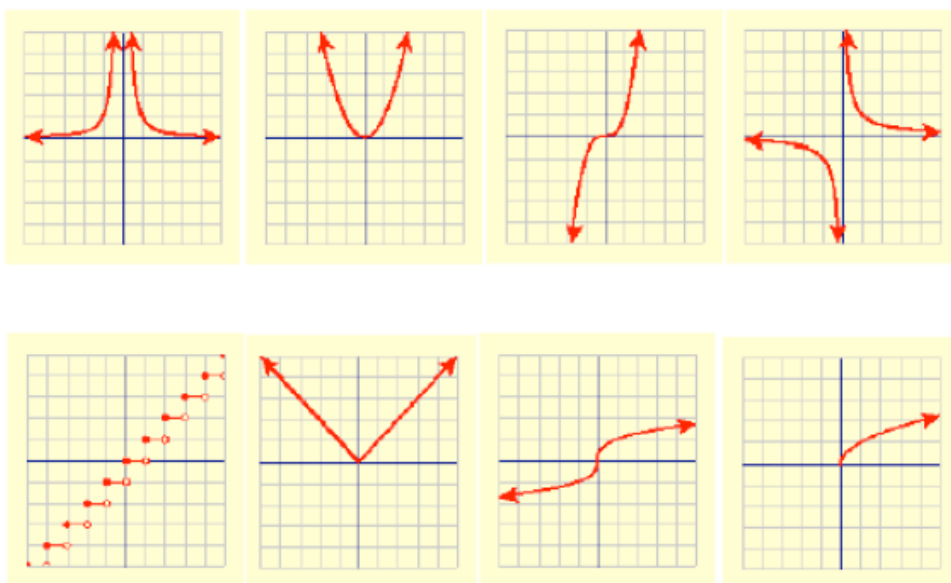
(a) $h(x) = (x - 1)^3 - 4$

(c) $f(x) = |x - 1|$

(b) $g(x) = x^2 + 3$

(d) $j(x) = 1 - \sqrt{x + 5}$

- (a) Identify the more basic function that has been shifted, reflected, stretched, or compressed and indicate the shape of the function that was found using the following figure.



- (b) Graph this function by indicating how the basic function found in part a) has been shifted, reflected, stretched, or compressed.
- (c) Determine the domain and range of this function. Write your answer in interval notation.

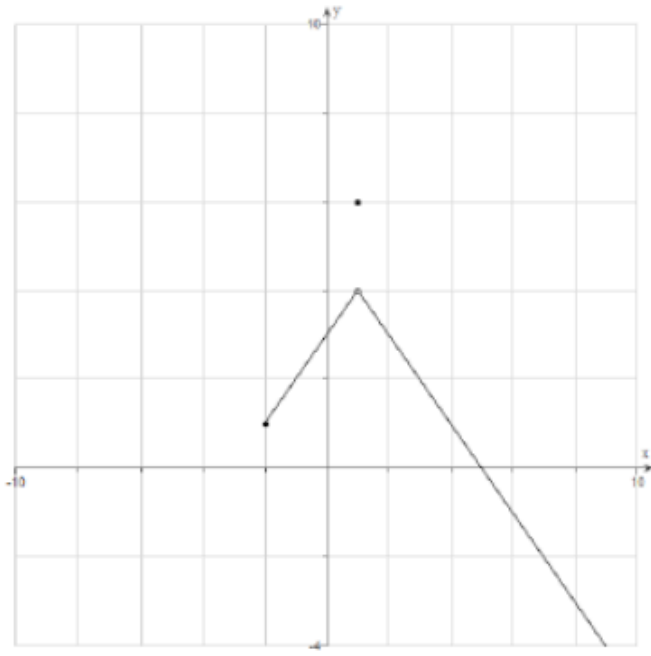
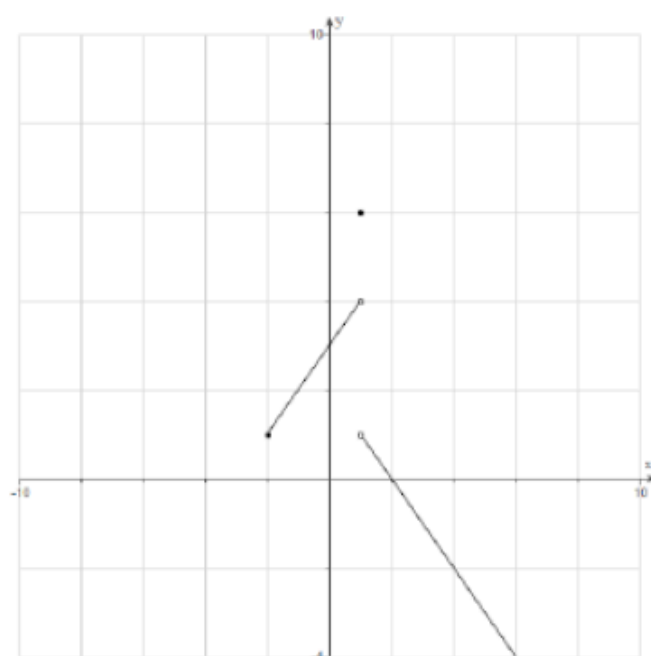
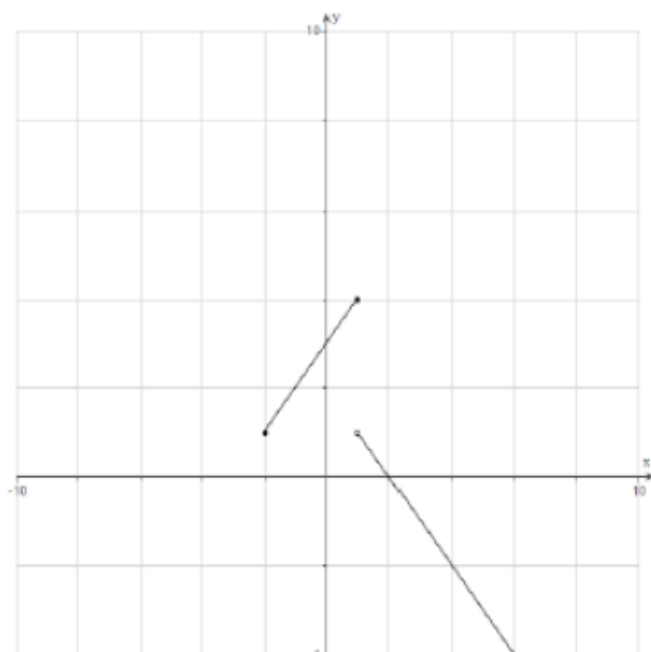
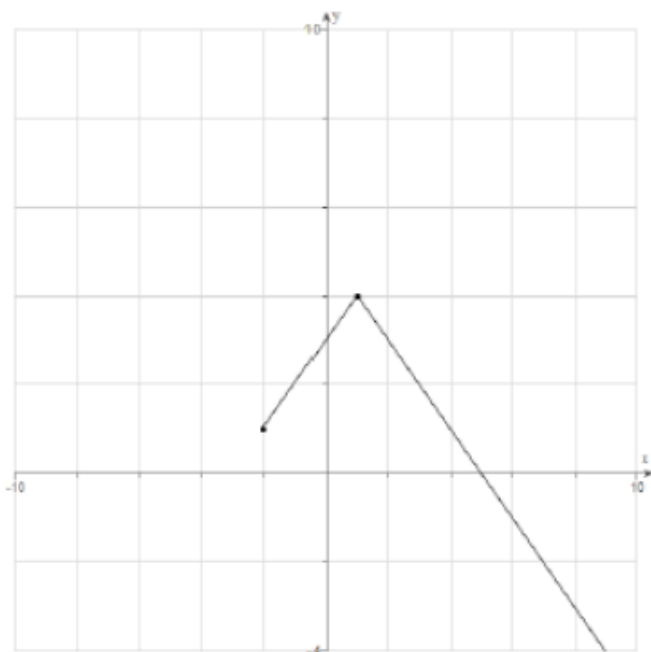
$$7. \text{ If } f(x) = \begin{cases} x + 3, & -2 \leq x < 1 \\ 4, & x = 1 \\ -x + 2, & x > 1 \end{cases},$$

(a) Evaluate the following

i. $f(-2) =$ ii. $f(0) =$ iii. $f(1) =$ iv. $f(4) =$

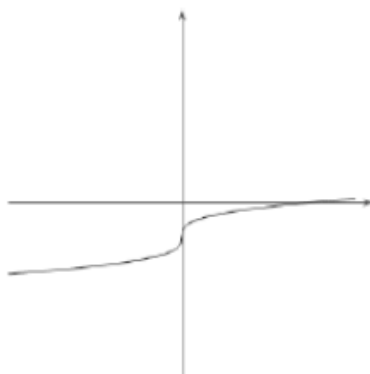
(b) Find the domain of $f(x)$

(c) Choose the correct graph of this function below.



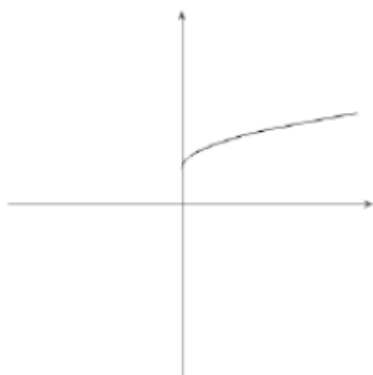
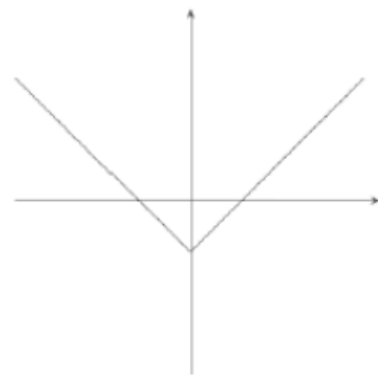
8. Find the equation of each graph.

- (a) $y = \sqrt{x} + 1$ (c) $y = -x^2 + 4$ (e) $y = x^3 + 1$ (g) $y = x^2 - 4$
(b) $y = |x| - 1$ (d) $y = \sqrt[3]{x} - 2$ (f) $y = |x + 1|$ (h) $y = \sqrt{x - 1}$



(1) _____

(2) _____



(3) _____

(4) _____

