

Please do all work on your own paper. You will be turning in the work, so do it all on notebook paper and NOT in your composition notebook.

Evaluate.

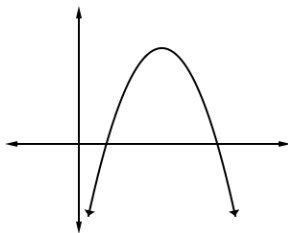
1. $[-2.5]$ 2. $[4]$ 3. $[0.5]$

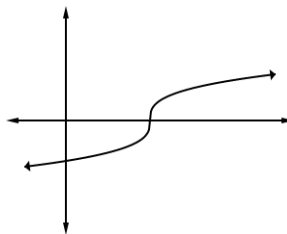
For problems 4, 5, 6,

a) **identify** the parent function, b) **describe** the transformation, and c) sketch the **graph** using a table.

4. $f(x) = -x^3 + 1$ 5. $g(x) = -\sqrt{x-2} + 1$ 6. $j(x) = 2|x+1| - 3$

Match the equation to the given graph.

7.  a) $f(x) = (x + 3)^2 + 4$
 b) $f(x) = -(x + 3)^2 + 4$
 c) $f(x) = (x - 3)^2 + 4$
 d) $f(x) = -(x - 3)^2 + 4$

8.  a) $k(x) = \sqrt[3]{x+1} - 2$
 b) $k(x) = \sqrt[3]{x+1}$
 c) $k(x) = \sqrt[3]{x-2}$
 d) $k(x) = \sqrt[3]{x-2} - 2$

9. Given $f(x) = 2x + 1$ and $g(x) = x^2 + 2x - 1$, find the following.

- a) $(f + g)(x)$ b) $(f - g)(x)$ c) $(fg)(x)$ d) $(g/f)(x)$ and state the domain
 e) $(f + g)(1)$ f) $(f - g)(-3)$ g) $(fg)(0)$

10. Given $f(x) = \sqrt{x+2}$ and $g(x) = x - 1$, find the following if possible.

- a) state the domain of f b) state the domain of g c) $f(g(x))$ state the domain

11. Given $f(x) = 3x + 4$ and $g(x) = 2x^2 + 2$, find the following.

- a) $(f \circ g)(x)$ b) $(f \circ g)(2)$ c) $(g \circ f)(2)$

12. Show algebraically that $f(x) = x^3 + 5$ and $g(x) = \sqrt[3]{x-5}$ are inverses of each other.

13. Use a calculator to make a sketch of the graph of the given function. State if it is one-to-one.

- a) $h(x) = |x| - |x - 4|$ b) $m(x) = \frac{(4-x)}{(6x^2)}$

14. **Restrict** the domain of the function $f(x) = (x - 4)^2$ so that the function is one-to-one and has an inverse function. **FIND** the inverse function. **State** the domain and the range of $f(x)$ and $f^{-1}(x)$.

15. Graph $p(x)$ on your graph paper.

$$p(x) = \lfloor x - 1 \rfloor$$

16. Use the graph of $r(x)$ on the right to answer the following.

a. sketch the graph of $y = r(|x|)$ on your graph paper.

b. sketch the graph of $y = |r(x)|$ on your graph paper.

BE SURE TO GRAPH PARTS a AND b ON SEPARATE GRAPHS AND LABEL THEM part a AND part b.

