

You will need LOTS of graph paper!

For each problem, follow these directions. Each problem will take at least half of a page.

1. Graph $f(x)$ on graph paper.	2. State the domain and range of $f(x)$ .	3. Does $f(x)$ pass the Horizontal Line Test? (In other words, will the inverse of $f(x)$ be a function?)
4. Find the inverse of $f(x)$ algebraically.	5. If $f(x)$ passed the HLT, continue to #7 - #9 (skip #6). If $f(x)$ did not pass the HLT, go to #6.	6. Restrict the domain of $f(x)$ so that the inverse will be a function and name the inverse $f^{-1}(x)$ ; state the domain and range of $f^{-1}(x)$ ; proceed to #8 and #9 to finish the problem.
7. Label the inverse with $f^{-1}(x)$ and state the domain and range of $f^{-1}(x)$ .	8. Graph $f^{-1}(x)$ on the SAME graph but in a DIFFERENT color.	9. VERIFY your inverses algebraically.

1.  $f(x) = x + 5$

9.  $h(x) = \sqrt{x + 4} - 2$

2.  $f(x) = \frac{1}{2}x - 2$

10.  $h(x) = 4\sqrt{x + 3}$

3.  $f(x) = -2x + 1$

11.  $h(x) = -\frac{1}{2}\sqrt{x} - 1$

4.  $f(x) = \frac{3}{4}x + 4$

12.  $h(x) = \sqrt{2x + 3} - 1$

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

13.  $a(x) = 3|x| + 1$

6.  $g(x) = (x - 3)^2 - 1$

14.  $a(x) = |x - 2| - 3$

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

15.  $a(x) = \frac{1}{3}|x + 1|$

8.  $g(x) = \frac{1}{2}x^2 - 4$

16.  $a(x) = |-4x - 2|$