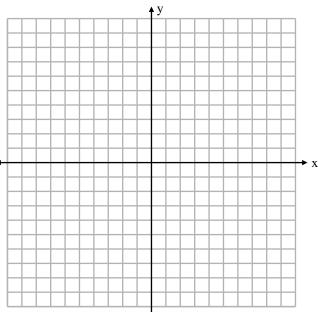
Instructions: Show all work. Use exact answers unless otherwise asked to round.

1. Find $f \circ g$ and $g \circ g$ for f(x) = 2x - 7, $g(x) = x^2 + 1$, and state the domain of each.

2. Find the inverse function $f^{-1}(x)$ for the function $f(x) = \frac{3x-2}{x+1}$. What is the domain and range of the function and its inverse?

3. Find the inverse function of $f(x) = x^3 + 1$. Sketch the graph of f and f^{-1} on the same graph. Plot the line of symmetry.



4. Solve the equations.

a.
$$2x + 1 = \sqrt{3 - 3x}$$

b.
$$5 - (4 - 2x)^{2/3} = 1$$

5. Find the degree of the polynomial $p(x) = -x^2(3-5x)(x^2+x+4)$. Also find the leading term, the leading coefficient, the constant term and the end behavior of the polynomial.

6. For the polynomial in #5, create a sign chart of the real zeros and create a rough sketch of the graph.