1. (3 points) Let \( f(x) = x^4 + 5 \).
   
   (a) Show that \( f(x) \) is one-to-one on the restricted domain \( D = [0, \infty) \).

   (b) What is the range of \( f \) on the set \( D \)?

   (c) Let \( f^{-1} \) denote the inverse of \( f \) on the set \( D \). Find an algebraic formula for \( f^{-1}(x) \). What are the domain and range of \( f^{-1} \).

2. (2 points) The graph of a function \( y = f(x) \) is pictured below. Graph \( y = f^{-1}(x) \) on the same axes.
3. (2 points) Let \( f(x) = x^3 + 2x \).
   (a) Show that \( f \) is invertible and find \( f^{-1}(12) \).

   (b) Evaluate \( (f^{-1})'(12) \).

4. (3 points) Let \( f \) be a one-to-one and invertible function whose graph contains the point \( P(1, 2) \). If the tangent line to the curve \( y = f(x) \) at \( P \) is given by the equation \( y = \frac{1}{3}x + \frac{5}{3} \), then find \( (f^{-1})'(2) \).