Fall 99 **Sample quiz** Name:

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1. Let $f(x) = x^3 - 1$. Explain why f is invertible and find
   a. $f^{-1}(x)$;
   b. $\big(f \circ f^{-1}\big)(x)$;
   c. $\big(f^{-1} \circ f\big)(x)$.

2. Let $\alpha_i = \left(\frac{1}{2}\right)^i$. Find

$$\sum_{i=1}^{10} \alpha_i.$$

3. Find $f(f(x))$ if $f(x) = \begin{cases} \log(x) & \text{if } x > 0 \\ x & \text{if } x \leq 0 \end{cases}$.

4. Find the inverse of $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$.