Are the following statements true? Explain.

1. 
   a. Compute $2^{3^2}$.
   b. Is $\sqrt{4 - 2\sqrt{3}} + \sqrt{4 + 2\sqrt{3}}$ complex but not real, real but not rational, or rational?

2. 
   a. Find all values of $x$ such that $|x - 3| < 1$.
   b. Find all values of $x$ such that $|x^2 - 6x + 6| < 1$.

3. 
   a. Sketch the graph of the function $f : \mathbb{R} \to \mathbb{R}$, $f(x) = \cos(x - \pi/4) - \sin(x + \pi/4)$. Explain.
   b. Compute $\lim_{x \to 0} \frac{\cos^2 x + \sin x - 1}{x^2}$ if it exists. If not, explain why.

4. 
   a. Prove that if $n$ is an odd natural number, then so is $n^2$.
   b. Let $f : [0, 2] \to [0, 2]$ be one to one. Must $f \circ f$ be one to one? Give a proof or a counterexample.