1. Suppose $x > 10$. Identify a value of $x^{0.1}$ that exceeds $\ln x$.

2. Is $(x^2 + 7x + 5)^3 \sim x^6$?

3. Is $(\sqrt{x} + 2)^3/(x^2 + 1) = o(1)$?

4. Is $e^{1/x} = \Theta(1)$?

5. Is $1/x \sim 0$?

6. Is $\sin(x) = O(1)$?

7. Is $\sin(x) = \Omega(1)$?

8. Determine which are transitive among $O, \Omega, \Theta, o$ and $\sim$.