Math 419 HW #8
Due 3:00 PM Friday, Nov. 8

1. (Jones Problem 5–2 (2.)) Suppose a, b, c are positive real numbers. How many zeros does the polynomial
$$p(z) = z^8 + az^3 + bz + c$$
have in the first quadrant?

2. Suppose f is holomorphic on the closed unit disk $D = \{z : |z| \leq 1\}$. If $|f(z)| > 2$ for all $z \in \partial D$ and $f(0) = 1$, show that $f(z) = 0$ has a solution in the interior of D.