ABSTRACT. In this paper we present a way of computing a lower bound for the genus of any smooth representative of a homology class of positive self-intersection in a smooth four-manifold X with second positive Betti number  $b_2^+(X) = 1$ . We study the solutions of the Seiberg-Witten equations on the cylindrical end manifold which is the complement of the surface representing the class. The result can be formulated as a form of generalized adjunction inequality. The bounds obtained depend only on the rational homology type of the manifold, and include the Thom conjecture as a special case. We generalize this approach to derive lower bounds on the number of intersection points of n algebraically disjoint surfaces of positive self-intersection in manifolds with  $b_2^+(X) = n$ .