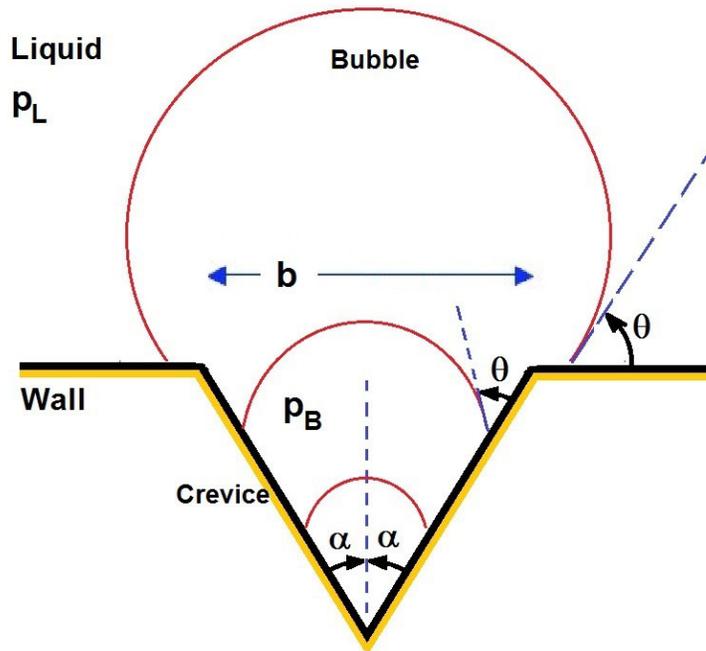## Problem 403A

Consider a conical cavity in a flat surface and sketch the form of the graph of the tension as a function of the bubble size for both positive and negative values of $(\theta - \alpha - \pi/2)$:

The contact angle is denoted by θ and the half-angle at the vertex of the conical cavity is denoted by α. Neglect gravity and assume that all the bubble surfaces are spherical in shape. For a certain range of sizes the graph is indeterminate; indicate this region in your sketch.