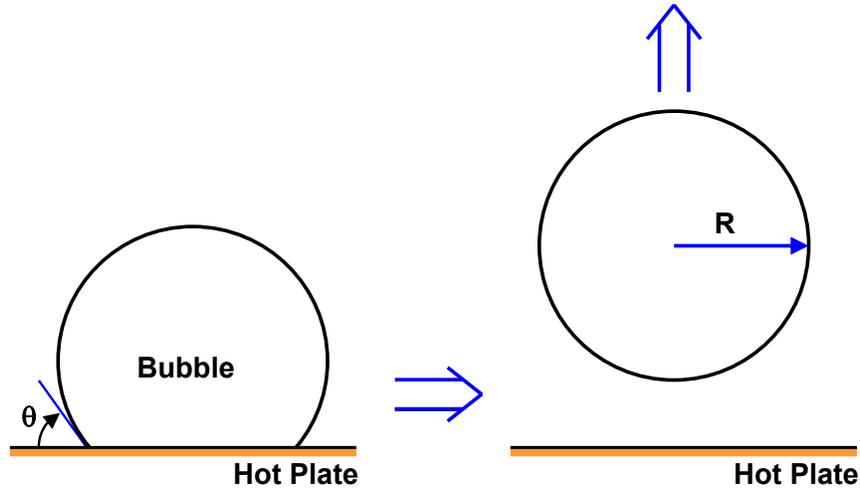


Problem 108B

Vapor bubbles which form in the bottom of a pan of boiling water remain attached until they are of sufficient size so that the upward buoyancy force just overcomes the surface tension force at the contact line of their attachment to the bottom.



Find an expression for the radius of the bubbles, R , rising through the liquid assuming the attached bubble shape is part of a sphere and the line of attachment is a circle. The answer involves the surface tension, S , the contact angle, θ , the density of the liquid, ρ , and the acceleration due to gravity, g .