In the first figure, the circle contains 6 small circles . So the angle is (PI/6) . When  the circle contains n small circles then the angle will be (PI/n) .  
  
  Now from trigonometry , we can write,

      sin(PI/n) = r/(R-r)……………(1)

Now just by solving the equation (1) we get,

r = sin(PI/n)\*(R-r)

r =( R\*sin(PI/n)) – (r\*sin(PI/n)

1 =(( R\*sin(PI/n))/r) – sin(PI/n) [ dividing both sides by r ]

1 + sin(PI/n) = ( R\*sin(PI/n))/r

r = ( R\*sin(PI/n)) / (1 + sin(PI/n)) ……..(2)

Now, we have all the values of right side of equation (2). So just drop the values in (2) and get r !! :D