The Infinite Stamp Problem (September-Problem 2014)

Consider an infinite "stamp" of concentric circles of irrational radius, so that using the infinite stamp on an infinite ink pad and infinite piece of paper prints ink on every circle with an irrational radius and leaves the circles of rational radius blank. Assume one such stamp has been used with the center of the circles at the origin of a two dimensional cartesian coordinate system. If the stamp is to be used a second time, where should the center be placed, this time, if the X-axis must be covered with ink?