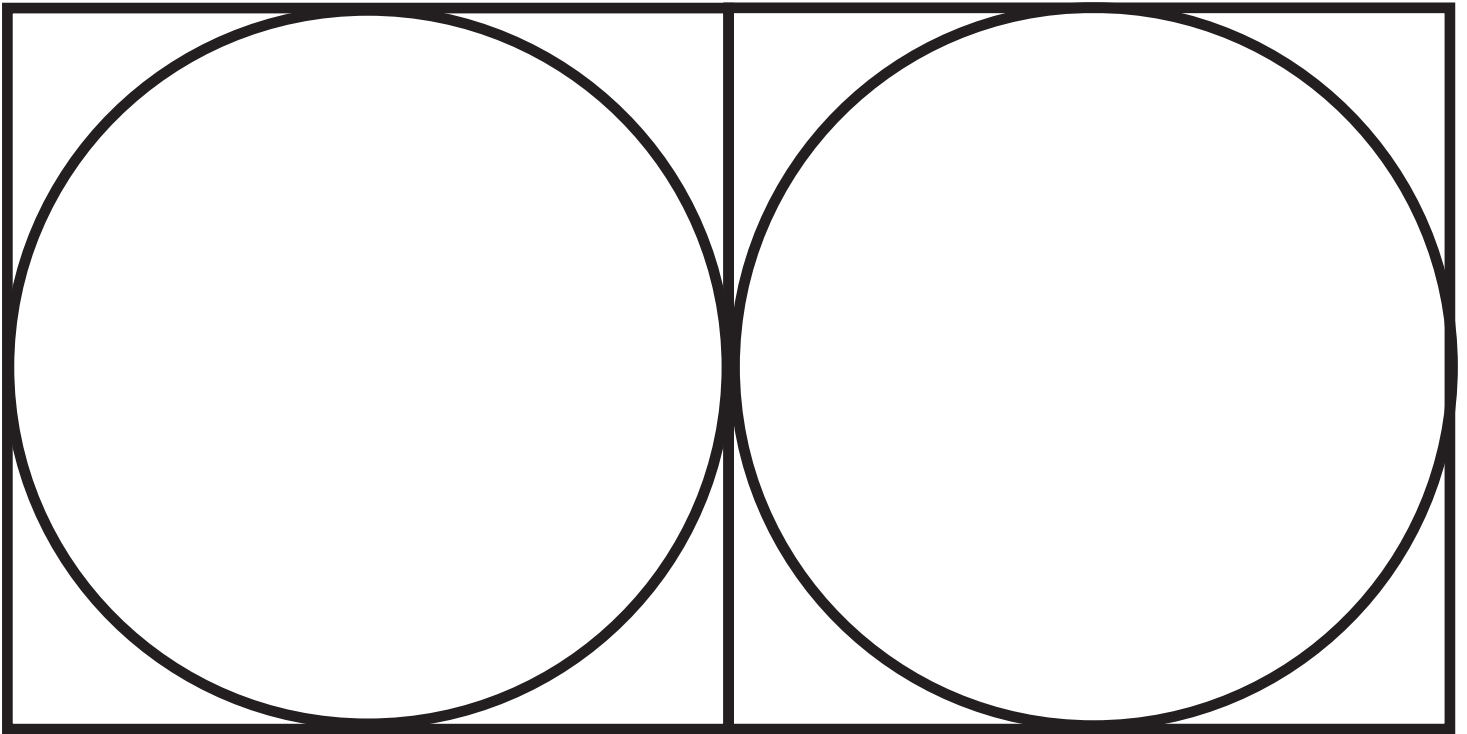
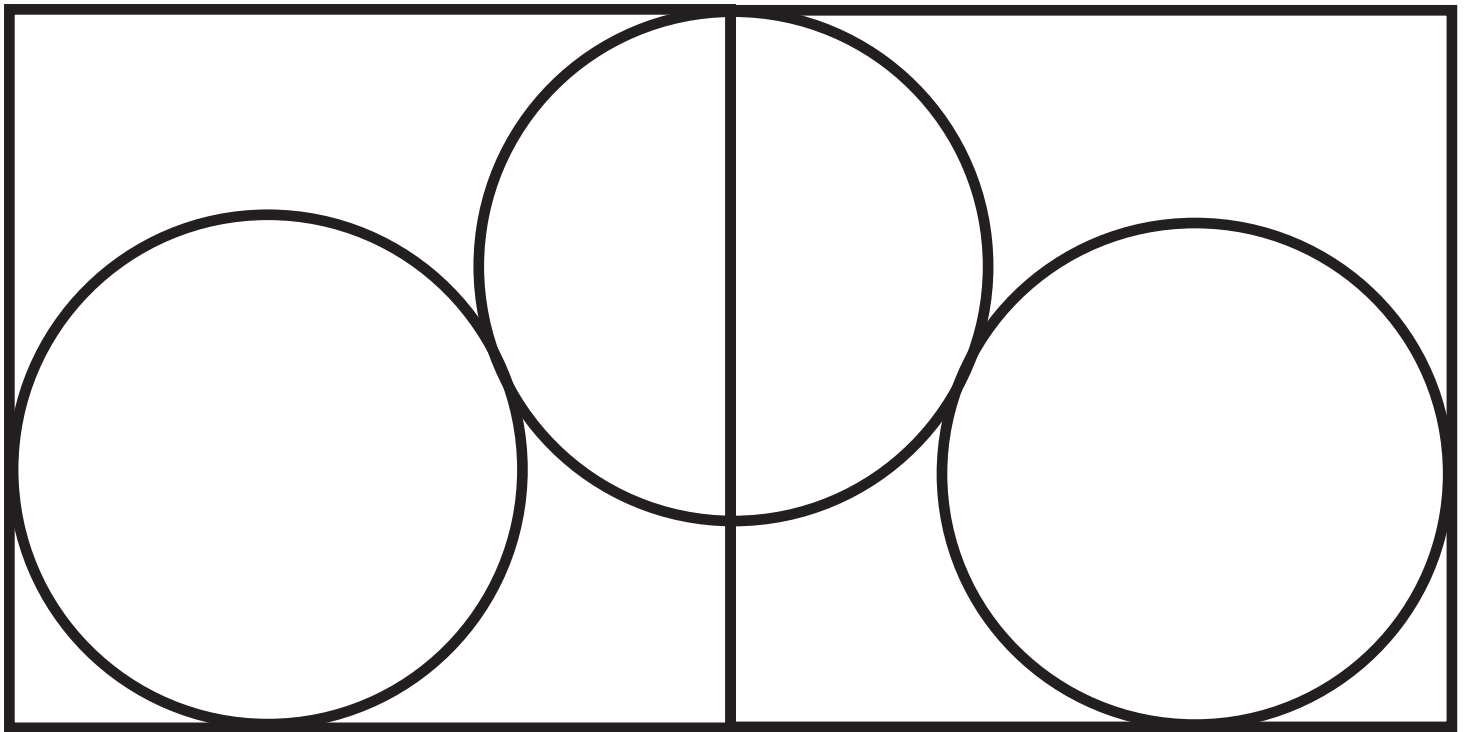


Circular Efficiencies in a Rectangular Field



For 2 squares of edge = 2 $\therefore R=1$
 total area of circles = $2 * (\pi * R^2) = 2 * \pi$
 total area of rectangles = $2 * (2)^2 = 8$
 efficiency ratio = $0.25 * \pi$



For 3 circles fitted into the same rectangle $\therefore R=6-2*(\sqrt{7})=0.708497$
 total area of 3 circles = $24 * \pi * (8-3*\sqrt{7}) = 1.5059*\pi$
 total area of rectangles = $2 * (2)^2 = 8$
 efficiency ratio = $0.188 * \pi$