

Problems 2018-3

We propose four problems involving a figure consisting of two congruent circles of radius r_2 (green circles in the figure) and two or three smaller congruent circles of radius r_1 (red circles). Each of the problems tells a simple relationship between r_1 and r_2 as described. Send a manuscript saying something new or giving some generalization. There is no deadline of submission.

Problem 1 ([4]).

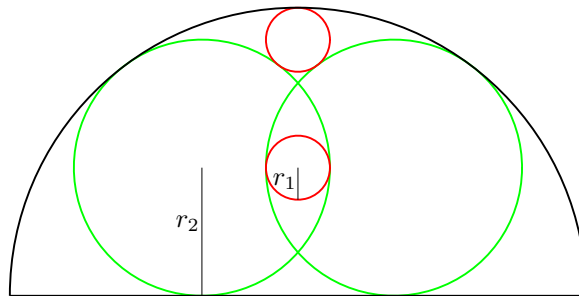


Figure 1: In a semicircle, $r_2 = 4r_1$.

Problem 2 ([2], [3]).

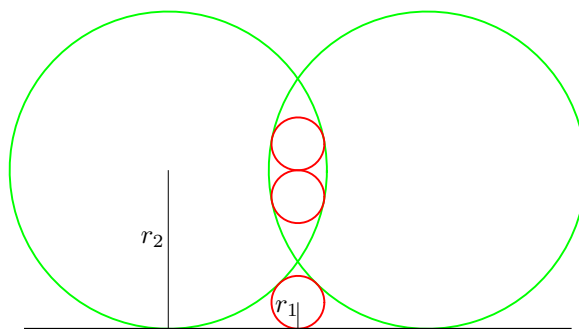
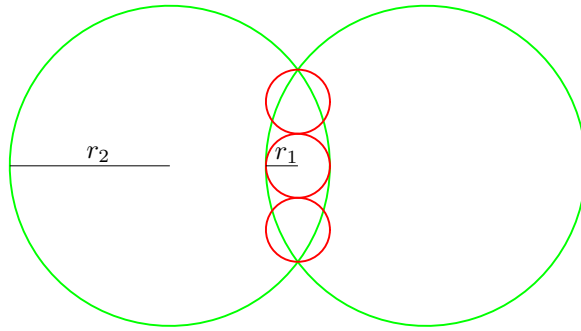
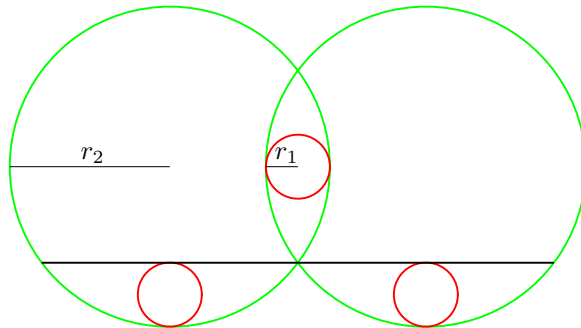


Figure 2: $r_2 = 6r_1$.

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Problem 3 ([4]).Figure 3: $r_2 = 5r_1$.**Problem 4** ([1]).Figure 4: $r_2 = 5r_1$.

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Tohoku Univ. WDB is short for Tohoku University Wasan Material Database.