Problem Set of the Week

Problem 1 - Arithmetic $(\star)$

From the list $1, 2, 3, \ldots, 20$ of the first twenty positive integers pick any two numbers, erase them, and write their sum at the end of the list. Proceed thus until one number remains. What number is it?


Problem 2 - Logic $(\star\,\star)$

Find the conclusion utilizing all the hypotheses.

1. Babies are illogical.

2. Nobody is despised who can manage an Arctic Dragon.

3. Illogical persons are despised.

Problem 3 - Geometry $(\star\,\star\,\star)$

The points at which the circles intersect are the endpoints of the diameter of the smaller circle. The smaller circle passes through the center of the larger circle, which has radius R. In terms of R, what is the area of the shaded region?
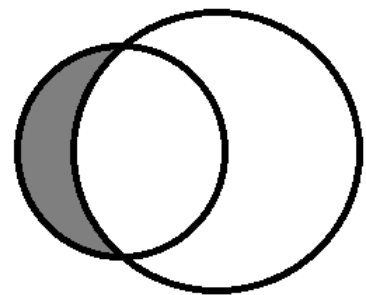
Rules: Solve one problem or solve them all. Submit solutions to Dr. Luke Grabarek in Snodgrass Hall 103A or via e-mail at lgrabarek@matsu.alaska.edu. All submissions will be awarded a $\star$ and, in addition, correct solutions receive the $\star$ rating of the problem.

"It will give you clearness of thought - the ability to *see your way* through a puzzle - .... *Try it.* That is all I ask of you!" - Lewis Carroll