Think Academy

AMC Day20

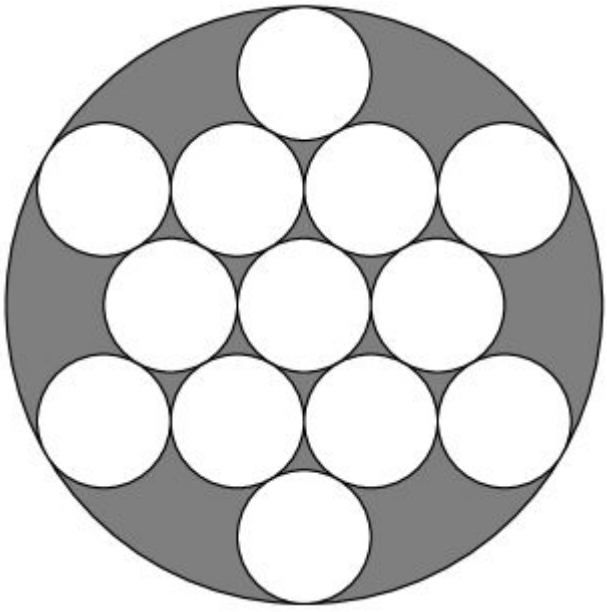
1 （1分）Line segment $\overline{AB}$ is a diameter of a circle with $AB = 24$. Point C, not equal to A or B, lies on the circle. As point C moves around the circle, the centroid (center of mass) of $\triangle ABC$ traces out a closed curve missing two points. To the nearest positive integer, what is the area of the region bounded by this curve? （2018 AMC 10B Problem 12）

A. 25　　B. 38　　C. 50　　D. 63　　E. 75

2 （1分）A regular hexagon of side length 1 is inscribed in a circle. Each minor arc of the circle determined by a side of the hexagon is reflected over that side. What is the area of the region bounded by these 6 reflected arcs? （2021 AMC 10B Problem 11）

A. $\frac{5\sqrt{3}}{2} - \pi$　　B. $3\sqrt{3} - \pi$　　C. $4\sqrt{3} - \frac{3\pi}{2}$　　D. $\pi - \frac{\sqrt{3}}{2}$　　E. $\frac{\pi + \sqrt{3}}{2}$

3 （1分）The figure below shows 13 circles of radius 1 within a larger circle. All the intersections occur at points of tangency. What is the area of the region, shaded in the figure, inside the larger circle but outside all the circles of radius 1? （2019 AMC 10A Problem 16）



A. $4\pi\sqrt{3}$

B. 7π

C. $\pi(3\sqrt{3}+2)$

D. $10\pi(\sqrt{3}-1)$

E. $\pi(\sqrt{3}+6)$