



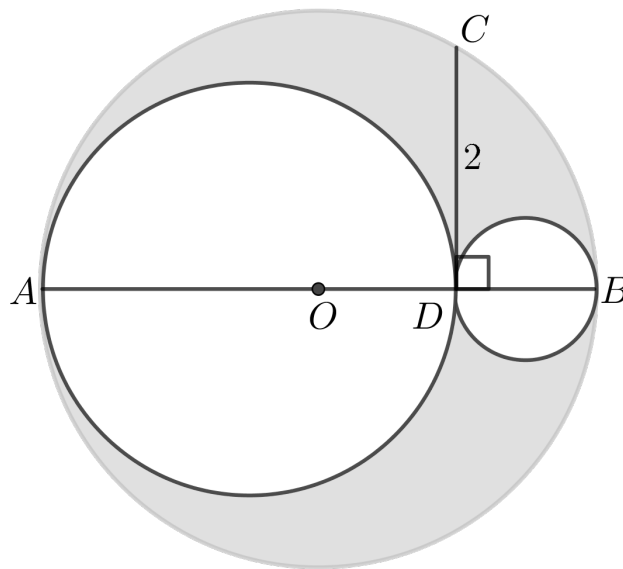
Problem of the Week

Problem E

Embedded Circles

A circle with centre O has diameter AB . A line segment is drawn from a point C on the circumference of the circle to D on OB such that $CD \perp OB$ and $CD = 2$ units. Two circles are drawn on AB . One has diameter AD and the other has diameter DB .

Determine the area of the shaded region. That is, determine the area inside the circle centred at O but outside of the circle with diameter AD and outside of the circle with diameter DB .



NOTE: In solving this problem, it may be helpful to use the fact that the angle inscribed in a circle by the diameter is 90° . For example, in the following diagram, PQ is a diameter and $\angle PRQ$ is inscribed in the circle by diameter PQ . Therefore, $\angle PRQ = 90^\circ$.

