

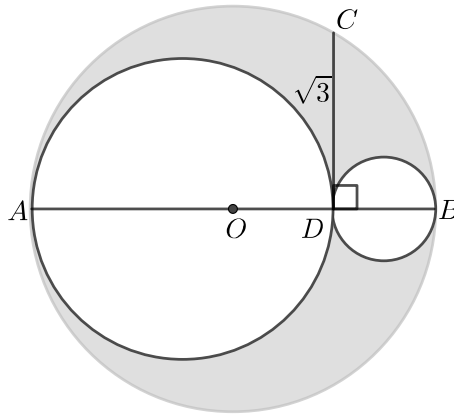


## Problem of the Week

### Problem E

### Circle, Circle, Circle

$AB$  is a diameter of a circle centred at  $O$ . A line segment is drawn from a point  $C$  on the circumference of the circle to  $D$  on  $AB$  such that  $CD \perp AB$  and  $CD = \sqrt{3}$  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 outside of the two inner circles but inside the outer circle.

It is known that the angle inscribed in a circle by the diameter is  $90^\circ$ . In the following diagram,  $PQ$  is a diameter and  $\angle PRQ$  is inscribed in the circle by diameter  $PQ$ . Therefore,  $\angle PRQ = 90^\circ$ .

