



## Problem of the Week

### Problem E

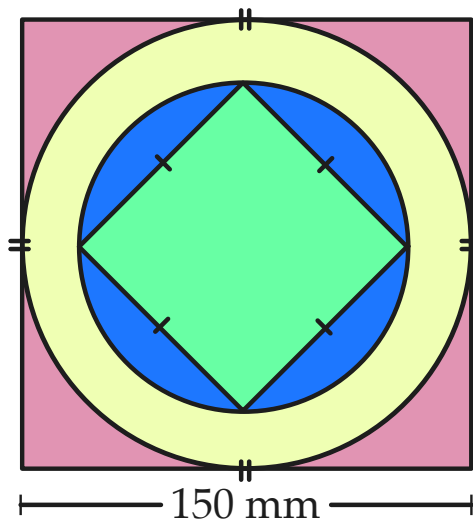
### Quilting Square

Caelan is drawing a design for a quilting square. The quilting square will consist of two squares and two concentric circles.

A larger square with side length 150 mm forms the boundary of the design.

Two concentric circles are drawn so that the larger of the two circles is tangent to the four sides of the larger square.

A smaller square is drawn so that the midpoint of the diagonals of the square passes through the centre of the circles and the four vertices of the square lie on the circumference of the smaller circle.



Caelan wants the area of the smaller square to be equal to the area of the region between the two circles. Determine the dimensions of the smaller square required to make the two areas equal.

