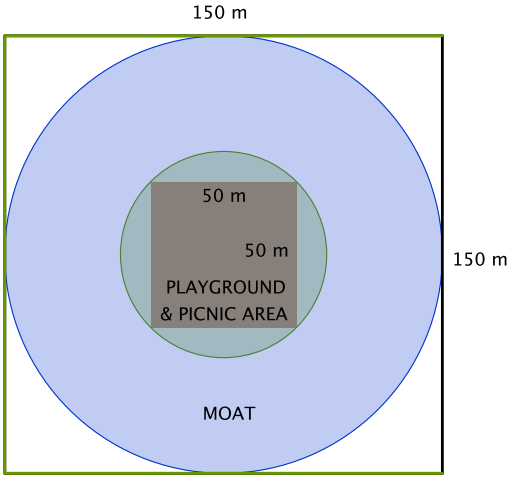
Problem of the Week

Problem E

Playground, Picnic and Paddle Park

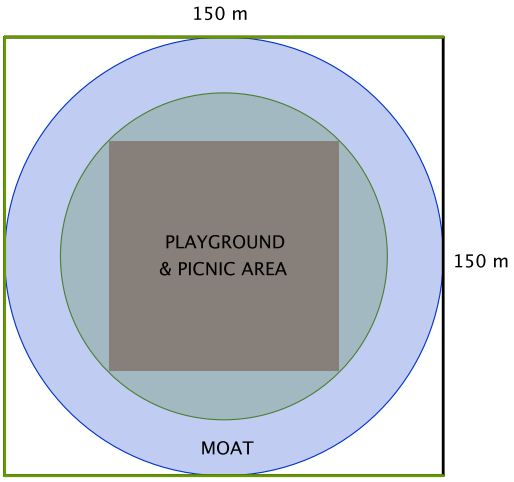
A park is square with dimensions 150 m by 150 m. An initial proposal has been submitted to the municipality to construct a playground and picnic area surrounded by a moat for paddle boats.

A square playground and picnic area with dimensions 50 m by 50 m is to be built in the centre of the park with its sides parallel to the outer sides of the park. A moat of constant depth is to be constructed around the central area. The moat looks like a donut when viewed from above. Its outer ring touches the midpoints of the outer sides of the park and its inner ring passes through the vertices of the central square.



INITIAL PROPOSAL

The proposal is reviewed by the municipality and rejected. The amount of water required for the moat in the initial proposal is excessive. A revised proposal will be approved if the moat is constructed in the same way as in the initial proposal but uses 65% less water than the amount that would have been used in the initial proposal. The new moat will have the same depth as the moat in the original proposal. As a result of decreasing the size of the moat the central area dimensions will increase.



REVISED PROPOSAL

What are the dimensions of the square playground & picnic area in the revised proposal? Round your final answer to the nearest tenth of a metre.