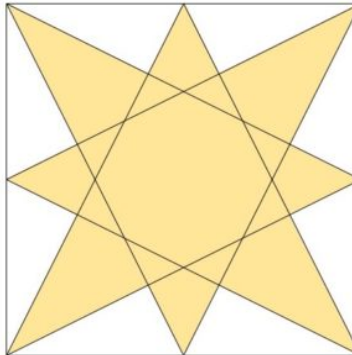


Stargazing



Paula is re-doing her entryway, and she has decided to inlay a big star-shaped tile into the ceiling. She found a tilework company, Mort's Tilework, that can cut tile into complex shapes like the one she has in mind:



Mort's Tilework has a seemingly simple pricing scheme for a tile order: \$0.25 per square centimeter of area plus \$0.10 per centimeter of perimeter. To place her order, Paula needs to send in both a schematic of her shape and her calculations for the area and perimeter of the shape.

What are the area and perimeter of Paula's star, if the area of the square enclosing it is 1 square meter? How much will the tile cost if she orders it from Mort's?