Problem-304

Problem Statement

(a) Find the side of a square having the same perimeter as a rectangle with sides a and b.

(b) Find the side of a square having the same area as a rectangle with sides a and b.

Solution

(a) Say the side of the square is x. Then we need $4x = 2(a + b)$, or $x = \frac{a+b}{2}$. Therefore, the side of the square is the arithmetic mean of the sides of the rectangle.

(b) We need $x^2 = a \cdot b$, or $x = \sqrt{a \cdot b}$. Therefore, the side of the square is the geometric mean of the sides of the rectangle.