

High School Math Problems
2017
Week 23
Problem

Let m , n , p , and q be non-zero real numbers such that, if x_1 and x_2 are the roots of the equation $x^2 + px + q = 0$ and y_1 and y_2 are the roots of the equation $y^2 + my + n = 0$, then they satisfy the relation $x_1y_2 = x_2y_1$.

Prove that

$$\frac{q}{n} = \frac{p^2}{m^2}.$$