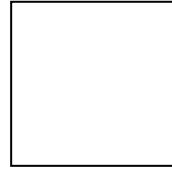**ALGEBRA.**

1. *I have two square pieces of cardboard and the total area is 53 cm^2. The total perimeter is 36 cm. Find the size of each square.*

2. *Prove that the equation $x^2 + (a - 2)x + (4a^2 - a + 1) = 0$ has no real solutions for all non zero values of a.*

3. *If one root of the equation $x^2 - 6kx + 10k + 12 = 0$ is twice the other root, find the possible values of k.*

4. *Prove that if one root of the equation $x^2 - px + q = 0$ is three times the other then $3p^2 = 16q$.*

5. *If the equation $ax^2 + (a + 5)x + (3a + 6) = 0$ has one real solution, find the value of a.*