Proof: if a is a algebraic number, then a^2 is also algebraic number.
quadratic formula for $f(x) = ax^2 + bx + c$ $x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$ $x^2 = \frac{b^2+b^2-4ac \pm 2b\sqrt{b^2-4ac}}{4a^2}$ $\sqrt{b^2-4ac}$ is algebraic number $\Rightarrow x^2$ is also algebraic number