# A-APR Zeroes and factorization of a quadratic polynomial I

## Task

Suppose $f$ is a quadratic function given by the equation $f(x) = ax^2 + bx + c$ where $a, b, c$ are real numbers and we will assume that $a$ is non-zero.

a. If $0$ is a root of $f$ explain why $c = 0$ or, in other words, $ax^2 + bx + c$ is evenly divisible by $x$.

b. If $1$ is a root of $f$ explain why $ax^2 + bx + c$ is evenly divisible by $x - 1$.

c. Suppose $r$ is a real number. If $r$ is a root of $f$ explain why $ax^2 + bx + c$ is evenly divisible by $x - r$.