

Section 3.4 Zeros of Polynomials Functions

The Rational Zero Theorem

If $f(x) = a_nx^n + a_{n-1}x^{n-1} + \cdots + a_1x + a_0$ has *integer* coefficients and $\frac{p}{q}$ (where $\frac{p}{q}$ is reduced to lowest terms) is a rational zero of f , then p is a factor of the constant term, a_0 , and q is a factor of the leading coefficient, a_n .

$$\text{Possible rational zeros} = \frac{\text{Factors of the constant term}}{\text{Factors of the leading coefficient}}$$

Example 1: Use the Rational Zero Theorem to list all possible rational zeros for each given function.