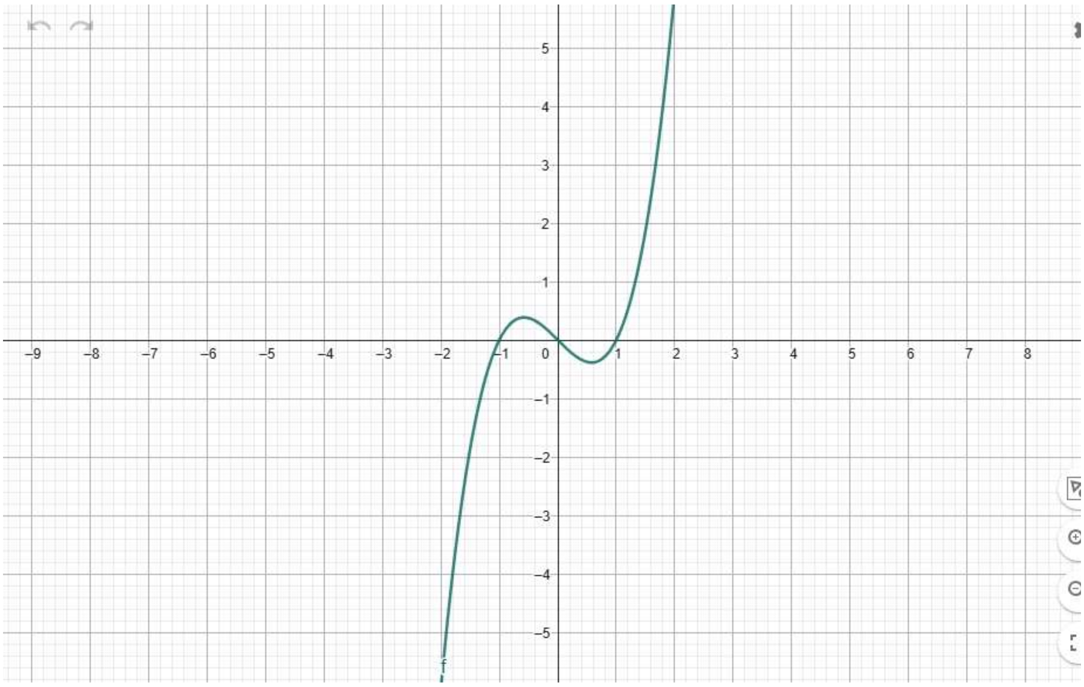

It is not difficult to prove that the graph of the following function corresponds to the equation:

$f(x) = x(x-1)(x+1)$ Solutions to the latter lie along the curve and make it easy to encode/decode numbers by means of the Cube roots: Check: Let 'n' be an integer:$n \in Z$ If we want to establish correspondence between Integers and Ternary componets we will look at the the following equation:

$$a(a-b)(a+b) = a - n \tag{2}$$

$$b = 1 \rightarrow \frac{a^3 - n}{a^3 - a} \tag{3}$$

(see formula (1)) The above reasoning gives us sufficient evidence to conclude that a relation between a Ternary set and Integers can be established by means of a a cubic equation in one variable is an equation of the form $ax^3 + bx^2 + cx + d = 0$ in which d is $d \in Z$

3 Further Proof

Here is an example that demonstrates principle highlighted in formula (3) Let's take some integer n $n \in Z$ and plug it into the equation (1) We will get then

$$n(n-1)(n+1) = a^3 - a \tag{4}$$

Formula (3) infers that $a^3 - a$, therefore a conclusion can be made that (5) is an effective means for mapping $x \mapsto n$

$$n(n-1)(n+1) = a^3 - a \sim x \mapsto n \tag{5}$$

Check: n=7: $7(7-1)(7+1) = 7^3 - 7$
$7 \mapsto (7, 6, 8)$