

3.

To find the vertical asymptote :

We must set the denominator equal to 0 and solve:

$$z^3 - 1 = 0$$

$$z = 1$$

There is a vertical asymptote at  $z=1$

To find the horizontal asymptote :

First we must compare the degrees of the polynomials.

The numerator contains a 2<sup>nd</sup> degree polynomial while

the denominator contains a 3<sup>rd</sup> degree polynomial.

Since the polynomial in the numerator is a lower degree than the denominator, the horizontal asymptote is located at  $n=0$ .

To find the oblique asymptote :

Since the degrees of the numerator are less than the degrees of the denominator, this rational does not have an oblique asymptote

