4.

To find the vertical asymptote :
We must set the denominator equal to 0 and solve:
$z^4-1=0$
$(z^2-1)(z^2+1)=0$
$(z^2-1)=0$
$(z-1)(z+1)=0$
$z=1$ or $z=-1$
There is vertical asymptote at $z=1$ and at $z=-1$
To find the horizontal asymptote :
First we must compare the degrees of the polynomials.
The numerator contains a 3^{rd} degree polynomial while the denominator contains a 4^{th} degree polynomial.
Since the polynomial in the numerator is a lower degree than the denominator, the horizontal asymptote is located at $c=0$.
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