4.

To find the vertical asymptote :
We must set the denominator equal to 0 and solve:
$u^3 - 64 = 0$
$u = 4$
There is a vertical asymptote at $u = 4$
To find the horizontal asymptote :
First we must compare the degrees of the polynomials.
The numerator contains a 2^{nd} degree polynomial while
the denominator contains a 3^{rd} degree polynomial.
Since the polynomial in the numerator is a lower degree than the denominator,
the horizontal asymptote is located at $r = 0$.
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