3.

It so happens that this function can be simplified as:

$$t(j) = \frac{-64+j^3}{-12-j+j^2}$$

$$= \frac{(j-4)\left(j^2+4j+16\right)}{(j-4)(j+3)}$$

$$= \frac{j^2+4j+16}{j+3}$$

To find the vertical asymptote :

$j + 3 = 0$

$j = -3$

There is a vertical asymptote at $j = -3$

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 2^{nd} degree polynomial.

Since the polynomial in the numerator is a higher degree than the denominator, there is no horizontal asymptote.

To find the oblique asymptote :

we must divide the numerator by the denominator $\frac{-64+j^3}{-12-j+j^2} = \frac{j^2+4j+16}{j+3} = \frac{13}{j+3} + (j + 1)$

There is an oblique asymptote at $k = j + 1$