4.

It so happens that this function can be simplified as:

$$c(g) = \frac{-27+g^3}{-9+g^2}$$

$$= \frac{(g-3)\left(g^2+3\,g+9\right)}{(g-3)\,(g+3)}$$

$$= \frac{g^2+3\,g+9}{g+3}$$

To find the vertical asymptote :

$$g + 3 = 0$$
$$g = -3$$

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

To find the horizontal asymptote :

First we must compare the degrees of the polynomials.

The numerator contains a 3rd degree polynomial while the denominator contains a 2nd 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 $\frac{-27+g^3}{-9+g^2} = \frac{g^2+3\,g+9}{g+3} = \frac{9}{g+3} + g$

There is an oblique asymptote at $u = g$