**1.**

It so happens that this function can be simplified as:

$z(g) = \frac{-125+g^3}{-25+g^2}$

$= \frac{(g-5)\left(g^2+5\,g+25\right)}{(g-5)\,(g+5)}$

$= \frac{g^2+5\,g+25}{g+5}$

To find the vertical asymptote :

$g + 5 = 0$

$g = -5$

There is a vertical asymptote at $g = -5$

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 $\frac{-125+g^3}{-25+g^2} = \frac{g^2+5\,g+25}{g+5} = \frac{25}{g+5} + g$

There is an oblique asymptote at $w = g$