

5.

To find the vertical asymptote :

We must set the denominator equal to 0 and solve:

$$w+3=0$$

$$w=-3$$

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

To find the horizontal asymptote :

First we must compare the degrees of the polynomials.

Both the numerator and denominator are 1st degree polynomials.

Since they are the same degree, we must divide the coefficients of the highest terms.

In the numerator, the coefficient of the highest term is 3

In the denominator, the coefficient of the highest term is an understood 1.

The horizontal asymptote is at $g=3$

To find the oblique asymptote :

Since the degrees of the numerator and the denominator are the same,

this rational does not have an oblique asymptote

