

5.

It so happens that this function can be simplified as:

$$\begin{aligned}h(j) &= \frac{-5-5j+10j^2}{1+2j} \\&= \frac{(2j+1)(5j-5)}{2j+1} \\&= 5j - 5\end{aligned}$$

To find the vertical asymptote :

There is no vertical asymptote

To find the horizontal asymptote :

First we must compare the degrees of the polynomials.

The numerator contains a 2nd degree polynomial while the denominator contains a 1st 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 and so the oblique asymptote $c=5j-5$

