

5.

It so happens that this function can be simplified as:

$$\begin{aligned}d(z) &= \frac{-4+6z+4z^2}{2+z} \\&= \frac{(z+2)(4z-2)}{z+2} \\&= 4z - 2\end{aligned}$$

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 2<sup>nd</sup> degree polynomial while the denominator contains a 1<sup>st</sup> 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  $c=4z-2$

