3.

It so happens that this function can be simplified as:

$$d(z) = \frac{-4-11z+3z^2}{1+3z}$$

$$= \frac{(z-4)(3z+1)}{3z+1}$$

$$= z - 4$$

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^{nd} degree polynomial while the denominator contains a 1^{st} 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 $r = z - 4$