

3.

To find the vertical asymptote :

We must set the denominator equal to 0 and solve:

$$r+4=0$$

$$r=-4$$

There is a vertical asymptote at  $r=-4$

To find the horizontal asymptote :

First we must compare the degrees of the polynomials.

Both the numerator and denominator are 1<sup>st</sup> 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  $d=3$

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

