Asymptotes of Rational Functions

Vertical:

For the equation f(x) = $\dfrac{n(x)}{d(x)}$ the vertical asymptote occurs when d(x) = 0

Horizontal:

When the degree of the polynomial is the same in the numerator and denominator, such as f(x) = $\dfrac{ax^2+bx+c}{tx^2+ux+v}$, the horizontal asymptote occurs at y = $\dfrac{a}{t}$

When the degree of the polynomial in the numerator is less than the denominator, such as f(x) = $\dfrac{ax+b}{tx^2+ux+v}$, the horizontal asymptote occurs at y = 0

Oblique/Slant:

When the degree of the polynomial in the numerator is greater than the denominator, such as f(x) = $\dfrac{ax^2+bx+c}{ux+v}$, use long division or synthetic division to find the oblique/slant asymptote