Name: _____ **Date:** _____

1) **Sketch the function** $f(x)=\frac{1}{x}$**. Identify each of the following.**

   a) Vertical Asymptote
   b) Horizontal Asymptote
   c) Domain
   d) Range
   e) End Behavior

2) **Explain how to find the vertical asymptote(s) of a rational function.**

   a) Find the vertical asymptote of $\frac{3x-1}{x-2}$

3) **Explain how to find the horizontal asymptote of a rational function.**

   a) Find the horizontal asymptote of $\frac{x-2}{x^2+4x+3}$.

   b) Find the horizontal asymptote of $\frac{2x-2}{4x+3}$.

   c) Find the horizontal asymptote of $\frac{x^2-2x+1}{3x-1}$.

4) **Explain how to find the oblique (slant) asymptote of a rational function.**

   a) Find the oblique asymptote of $f(x)=\frac{2x^2-3x+1}{x-2}$.

5) **Explain how to find the holes in a rational function.**

   a) Find the holes of $\frac{x+5}{x^2+14x+45}$

6) **Explain how to find the *x*- and *y*-intercepts of rational functions.**

7) **Draw a diagram of each of the 4 different scenarios that can occur when graphing a rational function that has two vertical asymptotes.**