Graphing Rationals Day 2

Recall the Acronym for Horizontal Asymptotes:

Identify the horizontal asymptote (if one exists):

A) $y = \frac{5x^3+2x+1}{7x^3+8}$

B) $y = \frac{2-x^2}{x^2-4}$

C) $y = \frac{5x^3+2x+1}{7x^4+8x}$

D) $y = \frac{2-x^3}{x-4}$

Example:

$$f(x) = \frac{3x^2 + x}{x^2 - 9}$$

1) What is the domain?

2) Identify any vertical asymptote(s).

3) Identify any horizontal asymptote.

4) Identify any zero(s).

5) Identify the end behavior.

You try:

Let $\boldsymbol{k(x) = \frac{x^3 - x^2}{x^2 - 6x + 8}}$

a) State the domain.

b) Identify any vertical asymptote(s).

c) Identify any horizontal asymptote.

d) Identify any zero(s).

Create a sample function that has NO horizontal asymptote, has a hole at x = 3, and has a vertical asymptote at x = -2.