Name: _____ Date: _____

Instructions: Please complete the following problems.

Problem 1. True or False: A rational function always has a horizontal asymptote.

Problem 2. Find the domain: $f(x) = \dfrac{3x-2}{x^2-3x+2}$

Problem 3. Find the VA(s): $f(x) = \dfrac{x^2-6x+8}{x^2-x-12}$

Problem 4. What are the differences between finding the domain and VA?

Problem 5. Find the HA: $f(x) = \dfrac{x+1}{x^3-5}$

Problem 6. Find the HA: $f(x) = \dfrac{2x+1}{3x-5}$

Problem 7. Find the HA: $f(x) = \dfrac{2x^2+1}{x-5}$

Problem 8. True or False: The following rational expression has a slant asymptote: $f(x) = \dfrac{3x^4+x}{x^2+3x-5}$

Problem 9. Find the SA: $f(x) = \dfrac{x^3-1}{x^2}$

Problem 10. Graph: $f(x) = \dfrac{-2x+2}{x-2}$
Hint: Find the domain, VA, HA, x and y intercepts, number line test, and then graph.

Problem 11. Graph: $f(x) = \dfrac{x^2}{(x-2)(x+3)}$
Hint: Find the domain, VA, HA, x and y intercepts, number line test, and then graph.

Problem 12. The NLT when graphing a rational function tests whether the function is above or below what?