College Algebra **Quiz 6 Solution** **Summer 2010**

NAME: _____Score_____/10

Please **print** your name

No Decimals **No mixed numbers** **No complex fractions** **No boxed or circled answers**

1. T **F** The graph of a rational function is a smooth continuous graph with no sharp corners.
2. T **F** Every rational function has a vertical asymptote.
3. T **F** Every rational function has a horizontal asymptote.
4. **T** F The graph of a rational function can cross its horizontal asymptote.
5. T **F** The graph of a rational function can cross its vertical asymptotes.
6. **T** F A rational function can have more than one vertical asymptotes.
7. T **F** A rational function can have more than one horizontal asymptote.
8. T **F** If f is a rational function with domain elements a and b such that $a < b$ and $f(a) \neq f(b)$, the graph of f must have an x-intercept between a and b.
9. T **F** If the numerator and the denominator in the rule for a rational function f have the same degree, then the x-axis is the horizontal asymptote for that function f.
10. **T** F The zeros of a rational function are the zeros of the numerator which are not zeros of the denominator.

Remember: Asymptotes are lines!

11. Consider the function f whose rule is $f(x) = \dfrac{x+2}{x-5}$

    a. What is the domain of f? $\{x \mid x \in R, x \neq 5\}$

    b. What are the zeros of f? **–2 is the only zero of f.**

    c. What are the vertical asymptotes of f? **The line x = 5.**

    d. What is the horizontal asymptote of f? **The line y = 1.**

    e. Calculate f(7). $f(7) = \dfrac{7+2}{7-5} = \dfrac{9}{2}$