

NAME: \_\_\_\_\_ Score \_\_\_\_\_/10

1. The function whose rule is  $f(x) = \frac{x^2 + 3x - 2}{x + 5}$  is a **rational** function.
2. The function whose rule is  $f(x) = 3x^5 - 23x^4 + 1$  is a **polynomial** function.
3. What is the domain of the function whose rule is  $f(x) = \frac{x^2 - 4}{x - 1}$ . Use interval notation to write your answer.  **$(-\infty, 1) \cup (1, \infty)$**
4. What are the zeros of the function whose rule is  $f(x) = \frac{x^2 - 4}{x - 1}$ ? **2 and -2**
5. What are the vertical asymptotes of the function whose rule is  $f(x) = \frac{x^2 - 4}{x - 1}$ ? Remember an asymptote is a line not a number.  **$x = 1$**
6. Does the function whose rule is  $f(x) = \frac{3x^2 - 4}{5x^2 - 1}$  have a horizontal asymptote? circle **YES** or NO.
7. Is it possible for the graph of a function to intersect its horizontal asymptote? circle **YES** or NO.
8. Is it possible for the graph of a function to intersect its vertical asymptote? circle YES or **NO**.
9. If  $f(k) > 0$ , then the point  $(k, f(k))$  is **above** the x-axis.
10. As with all functions the convention for the domain of a rational function is all real numbers for which the rule is defined (makes sense). Therefore the domain of a rational function is all real numbers except the **real zeros** of the **denominator**