

NAME: _____ Score _____/10

All Questions on this quiz refer to the function whose rule is given by the equation

$$f(x) = 5x^6 + 3x^4 - 2x^3 - x^2 + 7$$

- a. What kind of function is f ? **polynomial**
- b. What is the degree of f ? **6**
- c. What is the leading term of f ? **$5x^6$**
- d. The graph of f tries to have how many x -intercepts? **6**
- e. What is the shape of its graph? **The graph of every polynomial is a smooth continuous curve with no sharp corners**
- f. If $\frac{p}{q}$ is a rational zero of f then $p \in \{ \pm 1, \pm 7 \}$
- g. If $\frac{p}{q}$ is a rational zero of f then $q \in \{ \pm 1, \pm 5 \}$
- h. If $\frac{p}{q}$ is a rational zero of f then $\frac{p}{q} \in \left\{ \pm 1, \pm \frac{1}{5}, \pm 7, \pm \frac{7}{5} \right\}$
- i. As $x \rightarrow +\infty$, $f(x) \rightarrow +\infty$
- j. As $x \rightarrow -\infty$, $f(x) \rightarrow +\infty$