

NAME: _____ Score _____/10

Please **print** your name

1. What are the possible rational zeros of the polynomial function whose rule is $f(x) = 4x^5 + 8x^3 + 4x + 3$.

$$p \in \{ \quad \quad \quad \}$$

$$q \in \{ \quad \quad \quad \}$$

$$\frac{p}{q} \in \{ \quad \quad \quad \}$$

2. What is the horizontal asymptote for the rational function whose rule is $f(x) = \frac{2x^3 - 4x + 2}{7x^4 + 9}$.

3. What are the vertical asymptotes of the rational function whose rule is $f(x) = \frac{x^4 + 2}{(x + 2)(x + 3)}$.

4. What are the zeros of the rational function whose rule is $f(x) = \frac{x^2 - 1}{x^2 + 5x + 6}$

5. Consider the function whose rule is $f(x) = (x - 4)^5(x + 3)^2$. What are the zeros and what are their multiplicities.