Section 2.6 Graphs of Rational Functions

- Objective: Graph a rational function without a calculator
- Example 1 Graph the following function:

$$f(x) = \frac{x^2 - 9}{x^2 + 4x + 3}$$

Steps:

1. Factor the Numerator N and Denominator Completely
2. Find the domain **Restrictions D≠0, Equal D to 0 (If N has any restrictions √, log... take it into consideration)**
3. Find the vertical asymptotes **Equal the D to zero (Check for holes)**
4. Find the horizontal Asymptotes **Compare the degree of N and D follow the rules**
5. Find the x intercept **Equal the Numerator to 0 (Because a fraction equal to 0 if N=0)**
6. Find the y intercept **Plug 0 for x**
7. Sketch the graph