Name:_____

Use the following steps to help you graph each rational function. Label the required information.

Graphing Rational Expressions

1. Plug zero in for x to determine the y intercept.
2. Factor both the numerator and denominator to find the x intercepts. (Zeros of numerator are x intercepts)
3. Find the vertical Asymptotes (Zeros of denominator are vertical asymptotes.)
4. Find Horizontal or Slant asymptotes.
5. Determine any symmetry.
6. Use the asymptotes and the intercepts to draw the graph. If needed, plug in numbers to determine where the graph is above and below the x axis.

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1. $f(x) = \dfrac{x^2 - 4}{x}$

2. $f(x) = \dfrac{x^2 + 1}{x}$

x-intercept(s):

y-intercept:

Vertical Asy:
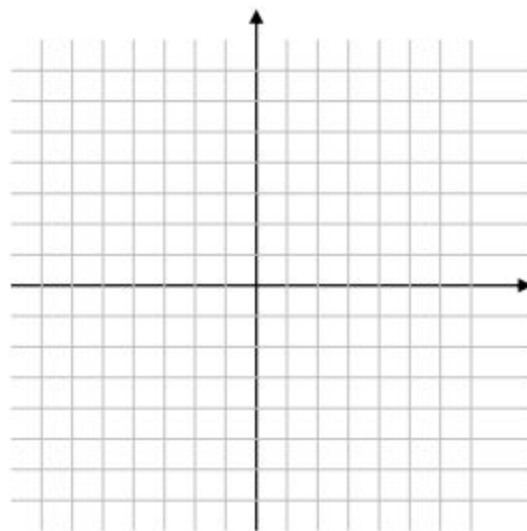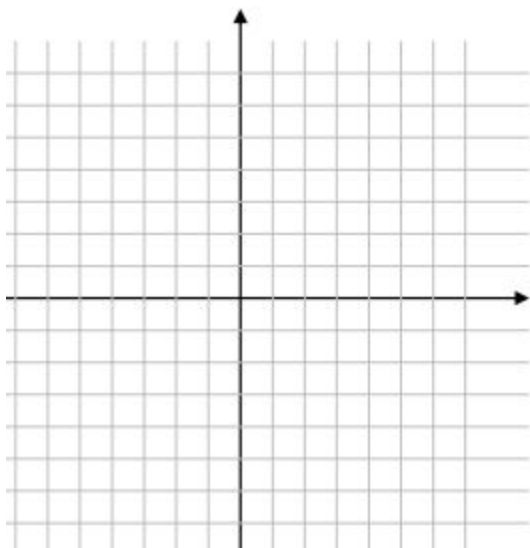
Slant Asy:

Symmetry:

x-intercept(s):

y-intercept:

Vertical Asy:

Slant Asy:

Symmetry:

3. $f(x) = \dfrac{x^3 - 1}{x^2 - 9}$

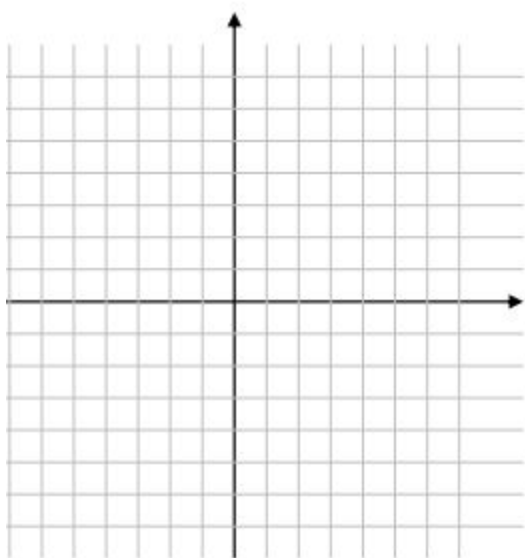4. $f(x) = \dfrac{x^2 - 6x + 5}{x + 3}$

x-intercept(s):

y-intercept:

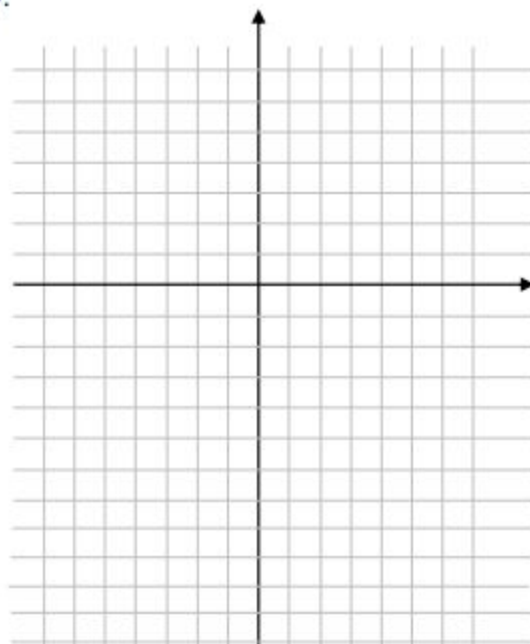Vertical Asy:

Slant Asy:

Symmetry:

x-intercept(s):

y-intercept:

Vertical Asy:

Slant Asy:

Symmetry:

5. $f(x) = \dfrac{4x^2}{x^2 + 1}$

6. $f(x) = \dfrac{4x}{x^2 - 1}$

x-intercept(s):

y-intercept:

Vertical Asy:

Slant/Horizontal Asy:

x-intercept(s):

y-intercept:

Vertical Asy:

Slant/Horizontal Asy: