For the functions below, analyze the following points:

1. The domain of the function.

2. The y-intercept and x-intercepts (if any) when they are easy to compute.

3. Horizontal asymptotes.

4. Vertical asymptotes.

5. Analysis of the first derivative (intervals where the function is increasing or decreasing, local minima or maxima).

6. Analysis of the second derivative (intervals where the function is concave up or concave down, points of inflection).

Finally, sketch the function. Your drawing does not need to be to scale, but should show all the qualitative features of the graph.

$\boxed{1}$ (a) $f(x) = \frac{x^2}{4-x^2}$

$\boxed{2}$ (b) $f(x) = -\ln(x) + \sqrt{x}$

$\boxed{3}$ (c) $f(x) = 2e^{-4/x}$