

Curve Sketching

Strategy for Sketching Graphs

1. Determine domain and range
2. Symmetry
3. Intercepts - Find x and y
4. Asymptotes - VA, HA, Oblique
5. Derivatives - Find f' , f''
6. Critical points - Find where $f' = 0$, DNE and where $f'' = 0$, DNE
7. Line up number lines and test intervals in f' and f''

_____ f'

_____ f''

8. Relative Extrema

_____ f' or _____ f'

_____ f'' or _____ f''

9. Graph - Find all y-values of important points using the original $f(x)$. Plot additional points if needed. Draw in asymptotes, and piece together the 4 possible graphs.

Analyze and sketch the graph of the following functions:

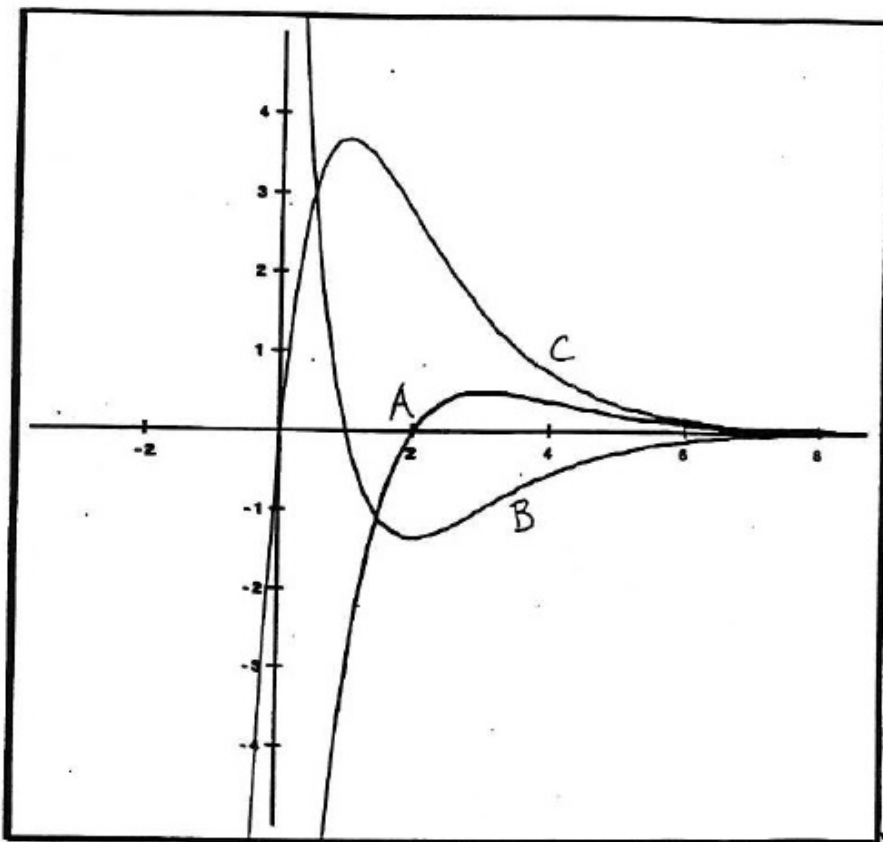
$$f(x) = \frac{x^2}{x^2-9}$$

$$f(x) = \frac{2x^2 - 5x + 5}{x - 2}$$

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

$$f(x) = \frac{10}{2 - 3e^{-\frac{x}{2}}}$$

Identify $f(x)$, $f'(x)$, and $f''(x)$:



The following graphs are of the first derivative $f'(x)$.
Use the graph to find $f(x)$.

