A General Procedure for Sketching the Graph of $f(x)$

1. Find the **domain** of $f(x)$
2. Find and plot all $x$ and $y$ axis intercepts
3. Determine all **vertical** and **horizontal** asymptotes
4. Find $f'(x)$: use it find **critical numbers** of $f(x)$ and **intervals of increase/decrease** (arrow diagram)
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5. Determine **relative extrema - critical values** $(x, f(x))$ where $f'(x) = 0$ or undefined

6. Find $f''(x)$: use it to find **intervals of concavity** and **points of inflection**

7. Use the above to sketch the graph; plot additional points as needed to fill in details