1. **Find domain D = {all values of $\mathbb{R}$ where f is defined} = {x$\in\mathbb{R}$ | $\exists!$y$\in\mathbb{R}$, y=f(x)}**

2. **Limits where f is undefined or not continuous**
   Determine what happens to f as it approaches the limits of its domain or its continuity.
   - Calculate $\lim_{x\to a^{\pm}} f(x)$ whenever f(a) is not defined or f not continuous at a
     - If this limit is $\pm\infty$, there will be a vertical asymptote
   - Calculate $\lim_{x\to\pm\infty} f(x)$
     - If this limit is a constant c, there will be a horizontal asymptote.
     - If $\lim_{x\to\infty}[f(x)-(mx+b)]=0$, then the line y=mx+b is a slant asymptote**.**

3. **Symmetry and Repetition**
   - Curves of even functions: $\forall x\in D$ f(-x)=f(x) are symmetric about the y-axis
   - Curves of odd functions: $\forall x\in D$ f(-x)=-f(x) are symmetric about the origin
   - Curves of periodic functions: $\forall x\in D$ f(x+p)=f(x) for a constant p are repeated over consecutive intervals of size p.

4. **Intervals of Increase and Decrease: compute f′(x)**
   - f is increasing in intervals where f′(x)>0
   - f is decreasing in intervals where f′(x)<0

5. **Local and Absolute Maxima and Minima**
   Find all the critical numbers of f: f′(x) is 0 or undefined. Use first or second derivative tests to determine if there are extreme values at these points

6. **Concavity and Points of Inflection: compute f′′(x)**
   - f is concave up in intervals where f′′(x)>0
   - f is concave down in intervals where f′′(x)<0
   - Inflection points occur where f changes concavity.

7. **Intercepts**
   - f intercepts y-axis at (0,f(0))
   - f intercepts x-axis at (x,0) s.t. f(x)=0

8. **Sketch curve**