

Graphing of functions using first and second derivatives

1. Finding the domain of the function;
2. Determination of the character of the function (for example: if it is even, odd, periodic function);
3. Calculation limits of the functions in points lying on the boundary of the domain and in $-\infty$ or $+\infty$;
4. Finding asymptotes;
5. Determination of the zeros of the function, if possible;
6. Finding intervals of monotonicity and points where $f'(x) = 0$ or points where f'' does not exist;
7. Determination of convexity and kind of extrema based on calculation of f'' (if exists);
8. Construction of the table;
9. Construction of the graph of the function.