

Homework 7

Due: Tue. Oct. 23, 2007

For each of the functions below:

- I. find its domain and range
- II. find its x - and y -axis intercepts
- III. determine whether the graph is symmetric with respect to the y -axis or the origin
- IV. find its asymptotes (horizontal, vertical, and oblique)
- V. find critical points, relative extrema and intervals where the function is increasing/decreasing
- VI. find inflection points and intervals where the function is concave up/down
- VII. sketch the graph $y = f(x)$.

1. $f(x) = \frac{\sin x}{x}$

2. $f(x) = \frac{x^2}{x+8}$

3. $f(x) = x\sqrt{2+x}$

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

5. $f(x) = \frac{1}{1-x^2}$