

Kerry Ojakian's MTH 30 Class Class Assignment #3

General Instructions:

- You may work on your own or in a group of **at most 2 students**.
- Hand in **one** assignment for your group; write each group member's full name on the assignment.

The Assignment

1. What is the domain of the following function?

$$f(x) = 17x^8 - x^6 + 23$$

2. What is the domain of the following function?

$$f(x) = \frac{x^2 + 25}{4(x - 3)(2x + 5)}$$

3. What are the zeroes of the following function?

$$f(x) = \frac{x^2 + 25}{4(x - 3)(2x + 5)}$$

4. When is the following function undefined?

$$f(x) = \frac{x^2 + 25}{x^2 - x - 20}$$

5. Graph the function, find its asymptotes, and find its domain and range:

$$g(x) = \frac{1}{(x-3)^2}$$

6. Consider the last function: $g(x) = \frac{1}{(x-3)^2}$

- (a) Describe its end behavior.
- (b) Use arrow notation to describe the behavior at the undefined value.

7. Graph the function, find its asymptotes, and find its domain and range:

$$g(x) = 2 + \frac{1}{(x-3)^5}$$

8. Consider the last function: $g(x) = 2 + \frac{1}{(x-3)^5}$

- (a) Describe its end behavior.
- (b) Use arrow notation to describe the behavior at the undefined value.