

MTH 30 LECTURE NOTES (Ojakian)

Topic 13: Rational Functions

OUTLINE

(References: 3.7)

1. Rational Functions

1. Rational Functions

- (a) Definition
- (b) Domain and Intercepts
- (c) Exercise: Section 3.7: 7 (and intercepts)

2. Basic Graphing

- (a) $\frac{1}{x^4}$ versus $\frac{1}{x^7}$, etc
- (b) Asymptotes
- (c) Transformation (along with asymptotes)
- (d) Domain and Range

3. Arrow Notation

- (a) Recall End Behavior
- (b) Also at some number:
 - i. Arrow Notation
 - ii. Limit Notation
 - iii. From left or right
- (c) Exercises: Section 3.7: 11, 15 (wait on horizontal asymptotes)
- (d) Exercises: Section 3.7: 51, 57

4. Horizontal Asymptotes

Skip slant asymptotes: So cases where the bottom degree is at least as large as the top degree.

- (a) Given by dividing leading terms
- (b) Examples: Section 3.7: 40, 41

5. Applications

Section 3.7: 80, 82