

MTH 30 LECTURE NOTES (Ojakian)

Topic 5: Transformation of Functions

OUTLINE

(References: 1.5)

1. Basic Function Shapes
 2. Transforming Functions
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1. Basic Function Shapes

See Table 13 on pages 26, 27, 28 (in Section 1.1)

Also put exponential function.

2. Graph Transformations

- (a) Note: Postponing transformation of multiplication by number, inside and outside function (till Trig)
- (b) Typical problems.
 - i. Type 1 Problem: From equation graph it.
 - ii. Type 2 Problem: From the graph, find the equation.
- (c) Vertical Shift (add/subtract outside function)
- (d) Horizontal Shift (add/subtract inside function)
- (e) Reflection: Across y axis (negation inside function)
- (f) Reflection: Across x axis (negation outside function)

3. Combining Transformations

4. Even and Odd functions

- (a) Even: $f(x) = f(-x)$ (unchanged by reflection across x axis)
- (b) Odd: $f(x) = -f(-x)$ (unchanged by reflection across origin)

5. Exercises

Section 1.5: 1, 6 - 9, 10 - 18, 27 - 30, 31 - 32, 33 - 46, 47 -52