

Review Sheet for Exam 3

This exam covers Sections 3.1, 3.2, 3.4, 3.6 and 3.7.

Topics:

From Section 3.1: Know how to evaluate a function at a given number (for example given a formula for $f(x)$, be able to find $f(5)$ (by plugging 5 in for x))(see problems #25-34 in Section 3.1). In particular, be able to evaluate piecewise functions (see Example 3 on page 217, and problems #21-24 on page 221). Know what the domain of a function is and how to determine it from the formula.

From Section 3.2: Know how to get information off of a graph, including the domain and range of the function and its values (for example, given the graph, be able to find $f(a)$ for a given number a). Understand the vertical line test, and be able to use it to determine whether or not a given graph is the graph of a function. Be able to draw the graphs of x^2 , x^3 , \sqrt{x} , $\sqrt[3]{x}$, and $1/x$, without spending a lot of time plotting values (I suggest you memorize the shapes, the domains and the ranges). See the table of graphs on page 232.

From Section 3.4: Know how to modify a formula in order to transform the graph by shifting up, down, left or right or by reflecting across the x - or y -axes. You will be given a modification of a formula and asked how it changes the graph (see problems #1-10 page 255, and #18,19 page 256). You will be given a graph of a function and asked to draw the graph of a modified version of that function (see problems #19,20 page 257). You will be asked to graph a given function using graph shifting techniques, along with the graphs of x^2 , x^3 , \sqrt{x} , $\sqrt[3]{x}$, and $1/x$ (see problems #33-48 page 257). Understand how the domain and range of the function change when it is transformed by shifting and reflecting.

From Section 3.6 Know how to compose two given functions (i.e. find $f \circ g$), given formulas for f and g (see Problems #29-44 page 276). Know how to evaluate the composition of two functions given their graphs (see Problems #23-28 page 276).

From Section 3.7 Know how to use the horizontal line test in order to determine whether or not a given function has an inverse on its given domain (see Example 2 page 281 and Problems #1-6 page 286). Be able to find the inverse of a function (Example 6,7 and 8 page 283, and Problems 31-50), and verify if a pair of given functions are inverses (see Example 5 page 283 and Problems #21-30, page 286). Know how to graph the inverse of a function given the graph of the function (see Problems #65,66, page 287).