Chapter 1 Study Guide

Section	Topic	Problems
1.1	Find the equation of a line in slope intercept form given two points.	33-42
	Write the slope-intercept form of the equation of the line through a given point parallel and perpendicular to a line.	57-62
1.2	Determine whether an equation represents *y* as a function of *x*.	13-24
	Evaluate a piecewise function at specific values	37-41
1.3	Find Domain and Range	1-4
	Find x & y intercept; evaluating a function	11-14
	Determine intervals of increasing, decreasing, or constant	19-22
	Find relative minimum and/or relative maximum	31-36
	Algebraically determine whether the function is even, odd, or neither	59-66
1.4	Know and sketch parent function transformations including rigid and nonrigid. Parent functions include: $f(x) = x$ (linear), $f(x) = x^2$ (quadratic), $f(x) = x^3$ (cubic), $f(x) = \sqrt{x}$ (radical), $f(x) = \lvert x \rvert$ (absolute value)	1-12
1.5	Add, subtract, multiply, and divide functions	5-12
	Find the composite of two functions and the domain of each function	35-48
1.6	Show that two functions are inverses of each other algebraically	9-20

Example Test Questions

For each function, answer questions *i* – *x* below:

$f(x) = -\sqrt{x-4} + 2$ $\quad g(x) = 2x^3 - 2$ $\quad h(x) = (x-5)^2 - 9$ $\quad j(x) = -3|x-4| + 1$

(i) Label at least 5 points
(ii) The vertex is _____
(iii) The x-intercept is _____
(iv) The y-intercept is _____
(v) Give the interval(s) in which the function is increasing _____
(vi) Give the interval(s) in which the function is decreasing _____
(vii) State if the function is even/odd/neither and show your work algebraically
(viii) Does the function have a relative minimum/maximum? What is it?
(ix) What is *f*(7)?
(x) Find *f*(*x*+5) and simplify.

For each *f* and *g*, answer questions *i* – *vii*

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

(i) $(f+g)(x)$
(ii) $(f-g)(x)$
(iii) $(fg)(x)$
(iv) $(f/g)(x)$
(v) Determine the domain of each function
(vi) $(f \circ g)$
(vii) $(g \circ f)$