

Math 1080

Exam 1 Objectives and Practice
Problems
(Chapters 2 and 3)

Solve rational inequalities (Section 1.7)
pg 126 # 91

Identify symmetry with respect to the x-axis, y-axis, and origin from the graph of an equation.

Find the inverse of a given one-to-one function. Pg 210 # 87-90

Verify that two functions are inverses of one another, and know how to graph a function with its inverse (reflected across the line $y=x$). Pg 205 # 25-28

Understand when a relation is a function and/or One-to-one function and use function notation. Pg 208 #11, 209 # 41-44, Pg 210 # 81-84

Find the domain of a given function,
given its graph or equation.
Pg 209 # 13-18

Determine where a function is increasing, decreasing,
or constant. Identify any local minima or maxima and
where they occur. Pg 208 #12

Find the average rate of change of a
function between two given points.
Pg 209 # 55-59

Determine if a function is even, odd, or neither from the graph and algebraically.
Pg 210 # 65,66

Graph the "library of functions" and apply transformations
Pg 209 # 63

Graph piece-wise defined functions. Find function values, the domain and range.
Pg 209 # 37-40

Given two functions, form the composite function and find its domain.
Pg 210 # 77, 78

Form the sum, difference, product, and quotient of two functions and determine the domain.
Pg 210 #75

Find the Difference Quotient of a given function. Pg 150 #35-38

Know how to graph a quadratic function, including main points of interest (vertex, x and y intercepts). Pg 292 # 1-4

Construct mathematical models, to determine a max or min. Determine their real world domain, use the model to analyze a problem.
Pg 292 # 7-8, 22

Sketch the graph of a polynomial function by first determining

- left and right end (hand) behavior of a polynomial function
- the zeros of a polynomial function, determine their multiplicity, and predict graph behavior at each root (crossing or touching the x-axis).
- Intercepts
- Pg 293 # 39-43

Use synthetic division to find the quotient and remainder when dividing a polynomial.

Pg 293 # 23-27

For polynomial functions:

- Find all the possible rational zeros using Rational Zeros Theorem. (p/q method)
- Test for (or prove) zeros using division or Remainder Theorem.
- Use this information to solve polynomial equations and graph polynomial functions.
- Pg 293 # 33, 34, 45

Understand Complex numbers and how to add, subtract, multiply and divide them.

Pg 293 # 47, 4, 49, 51

Understand and use the conjugate
pairs theorem.

Pg 293 #58

Find all the complex zeros (real and imaginary)
and write the function in factored form.

Pg 294 # 61-65

Sketch the graph of a rational function
by determining

- the domain
- the intercepts
- the vertical, horizontal,
and oblique asymptotes

• Pg 294 # 77-81
