

Exam 1 Review Sheet

Review homework problems and quizzes (solutions are posted on the course webpage) in addition to the suggested problems below.

Section 1.1

- Solve equations with absolute value (p. 14, #3)
- Linear equations (p. 15 # 31)
 - Standard form, point-slop form, slope-intercept form
- Equation of a circle (p. 16 # 61)
- Trig functions and equations (p. 16 # 71)
- Exponential and logarithms functions and equations (p. 17 #81, 83)
- Quadratic functions, equations, and formula (with real and complex solutions p. 17 # 103, 109)
- Word problems involving linear equations (p. 15 #49, 53)

Section 1.2

- Domain and range of functions (p. 44 # 17)
- Even and odd functions (p. 43 # 7,9)
- Function composition (p. 44 # 17)
- Law of mass action (p. 44 #29, 30)
- Know the graph, domain and range for the following functions:
 - Polynomial functions
 - Rational functions
 - Power functions
 - Exponential functions
 - Logarithmic functions
 - Trig functions (sine, cosine, and tangent)
 - p. 44 # 33, 35, 75, 83, 99, 101
- Exponential decay $W(t) = W_0 \exp(-\lambda t)$ (p. 46 # 61, 63, 65)

Section 1.3

- Graphing translations
 - Vertical, horizontal, stretching, compression
 - p. 69 # 1, 3, 9, 11, 17, 21, 25, 31
- Logarithmic scaling (p. 69 - 70 # 33, 35, 37)
- Transformation into linear functions:
 - Log-linear plots
 - p. 70 # 43, 49, 57
 - Log-log plots
 - p. 70 # 67, 69, 75, 77

Section 2.1

- Exponential growth and decay population models
 - General formula: $N_t = N_0 R^t$
 - Recursion: $N_{t+1} = RN_t$
 - p. 87 # 3, 11, 15, 19, 23, 37, 49, 75

Section 2.2

- Sequences (p. 99 – 100 # 3, 5, 15, 23, 27)
- Limits of sequences (p. 100 # 33, 35, 37, 43, 47)
- Limit laws (p. 101 # 73, 77, 81)
- Fixed points of recursions (p. 101 # 93, 95, 101)
- Limits of recursions with given initial conditions (p. 101 # 103, 105)

Section 2.3

- Given a logistic equation with specified constants and initial value, compute the first 5 values (p. 113 # 37, 41)
- Given the Ricker's curve equation with specified constants and initial value, compute the first 5 values (p. 113 # 51, 53)

Section 3.1

- Informal definition of limits & computing limits (p. 127 – 128 # 3, 7, 9, 13, 15, 31)
- One-sided limits (p. 128 # 23, 25)
- Infinite limits and limits that do not exist (p. 128 # 33, 35)
- Limit laws (p. 128 # 41, 45, 47, 51, 53)

Section 3.2

- Criteria for continuity (p. 129)
- Show that a function is continuous or discontinuous (p. 137 # 3, 5, 7, 9, 13, 17, 19, 21, 23, 27)
- Evaluate limits of continuous functions (p. 138 # 31, 35, 37, 39, 41, 45, 47)

Section 3.3

- Evaluate limits at infinity (p. 142 # 5, 9, 13, 15, 23, 25, 27)

Section 3.4

- Sandwich theorem
- Apply to find limits (p. 148 # 1, 3, 5, 7, 9, 13, 15)

Section 3.5

- Intermediate value theorem (p. 152 # 3, 5)
- Bisection method (know how to apply a couple of steps) (p. 153 #7, 9)