

PRE-CALCULUS 11 – Exam Outline

Chapter 1: Sequence and Series

- Arithmetic sequences ... $d = t_n - t_{n-1}$
- Arithmetic series
- Geometric sequences ... $r = t_n / t_{n-1}$
- Geometric series
- Infinite geometric series
 - Convergent vs. divergent
- Problem solving

Chapter 3: Quadratic Functions

- Vertex form ... vertex = (p, q)
- Standard form ... y-int = c; vertex: $x = -b/2a$
- Maximum and minimum
- Domain and range
- Axis of symmetry
- Intercepts
- Completing the square
- Optimization problems

Chapter 4: Quadratic Equations

- Solving by graphing (find zeros or intersection of two functions)
- Solving by factoring
- Solving by completing the square
- Solving by using quadratic formula
- Discriminant ... $D = b^2 - 4ac$... used to determine the number of roots
- Problem solving

Chapter 8: Systems of Equations

- Finding points of intersection
- Linear-linear ... linear-quadratic ... quadratic-quadratic
- Number of points of intersection (discriminant)
- Solving by graphing (2nd ... CALC ... 5:Intersect)
- Solving by substitution
- Solving by elimination
- Problem solving

Chapter 9: Quadratic inequalities (omit 9.1 ... done in Math 11)

- Quadratic inequalities in one variable
 - Solving by factoring and making a sign diagram
 - Creating inequality given solution
- Quadratic inequalities in two variables
 - Graphing quadratic then shading (test point)
 - Creating inequality given graph

Chapter 5: Radical Expressions and Equations

- Simplifying radical expressions
- Stating restrictions on variable
- Multiplying and dividing radical expressions
- Rationalizing the denominator
- Solving radical equations (isolate radical and square both sides ... must verify)
- Problem solving

Chapter 2: Trigonometry (omit 2.3 and 2.4)

- Angles in standard position
- Terminal arm and initial arm
- Special triangles (45-45-90 and 30-60-90)
- Reference angles
- Trig ratios
- CAST rule
- Solving for an angle

Chapter 6: Rational Expressions and Equations

- Simplifying rational expressions
- FACTORING!!
- Multiplying, dividing, adding, and subtracting
- Stating restrictions
- Solving rational equations (be sure to determine if solutions are permissible)
- Problem solving

Chapter 7: Absolute Value and Reciprocal Functions

- Evaluating absolute value expressions
- Graphing absolute value functions (linear and quadratic)
- Domain, range, intercepts
- Piecewise functions
- Solving absolute value equations (verify answers)
- Graphing reciprocal functions (linear and quadratic)
 - Asymptotes
 - Intercepts
 - Invariant points
 - Domain and range