



Citadel High Mathematics Department

MATH 11 PRE CALCULUS COURSE OUTLINE

Recommendation: Successful completion of Mathematics: Grade 11

Textbook: Pre-Calculus 11 (McGraw-Hill Ryerson, 2011)

Course Outline:

Sequences and Series:

Assessment 10%

- Students will be expected to analyze arithmetic sequences and series to solve problems.
- Students will be expected to analyze geometric sequences and series to solve problems

Quadratics:

Assessment 35 %

- Students will be expected to factor polynomial expressions of the following form where a , b , and c are rational numbers.
 - $ax^2 + bx + c$, $a \neq 0$
 - $a^2x^2 - b^2y^2$, $a \neq 0$, $b \neq 0$
 - $a[f(x)]^2 + b[f(x)] + c$, $a \neq 0$
 - $a^2[f(x)]^2 - b^2[g(y)]^2$, $a \neq 0$, $b \neq 0$
- Students will be expected to analyze quadratic functions of the form $y = a(x - p)^2 + q$ and determine the vertex, domain and range, direction of opening, axis of symmetry, x-intercept, and y-intercept.
- Students will be expected to analyze quadratic functions of the form $y = ax^2 + bx + c$ to identify characteristics of the corresponding graph, including vertex, domain and range, direction of opening, axis of symmetry, x-intercept and y-intercept, and to solve problems.
- Students will be expected to solve problems that involve quadratic equations.

System of Equations and Inequalities

Assessment 15%

- Students will be expected to solve, algebraically and graphically, problems that involve systems of linear-quadratic and quadratic-quadratic equations in two variables.
- Students will be expected to solve problems that involve linear and quadratic inequalities in two variables.
- Students will be expected to solve problems that involve quadratic inequalities in one variable.

Radicals and Trigonometry:

Assessment 25 %

- Students will be expected to solve problems that involve operations on radicals and radical expressions with numerical and variable radicands.
- Students will be expected to solve problems that involve radical equations (limited to square roots).
- Students will be expected to demonstrate an understanding of angles in standard position expressed in degrees (*and in radians*).
- Students will be expected to solve problems, using the three primary trigonometric ratios for angles from 0° to 360° in standard position.
- *Students will be expected to develop and apply the equation of the unit circle. (note: italics indicate newly added outcomes)*

Rational Equations and Absolute Value and Reciprocal Functions: Assessment 15 %

- Students will be expected to demonstrate an understanding of the absolute value of real numbers.
- Students will be expected to determine equivalent forms of rational expressions (limited to numerators and denominators that are monomials, binomials, or trinomials).
- Students will be expected to perform operations on rational expressions (limited to numerators and denominators that are monomials, binomials, or trinomials).
- Students will be expected to solve problems that involve rational equations (limited to numerators and denominators that are monomials, binomials, or trinomials).
- Students will be expected to solve, algebraically and graphically, problems that involve systems of linear-quadratic and quadratic-quadratic equations in two variables.
- Students will be expected to graph and analyze reciprocal functions (limited to the reciprocal of linear and quadratic functions).

Final Assessment:	80% Course Outline
	20% Final Exam

NOTE: Individual assessments will be recorded in Powerschool and included in final grade after enough assessments have occurred within a unit.