Radnor High School
Course Overview

Algebra 2 (CP)
05040436

General Information

Credits: 1.0 Credits
Length: Full Year
Weighted: Unweighted
Format: Meets Daily
Prerequisite: Algebra 1, Geometry and/or teacher recommendation
Grade: 10, 11

Overall Description of Course

Algebra 2 is designed to reinforce and to extend the skills and concepts from previous algebra courses. Topics will include, but are not limited to, solutions of linear equations and inequalities, solutions of quadratic equations, rules for exponents, radicals and rational expressions, and graphs of linear, absolute value, and quadratic functions. Where appropriate, applications using geometric concepts will be included. Students are required to have a graphing calculator (TI-83 or TI-84 preferred) for this course.

Course Objectives:

Overall:

1. To utilize technology using graphing calculators and computers.
2. To make connections between mathematics and the real world.
3. To explore mathematical functions and their relationship to real world applications.
4. To strengthen algebraic skills for standardized tests.
5. To explore number systems and computations.
6. To develop the ability to think critically.
7. To represent situations that involve variable quantities with expressions, equations, and inequalities.

Common Assessments:

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1. Mid-Term
2. Final

Major Units of Study:

By the end of quarter 1, students should have an understanding of

1. Evaluating and simplifying algebraic expressions
2. Solving linear equations and rewriting formulas
3. Using verbal and algebraic models to solve real-life problems
4. Analyzing and representing data
5. Graphing and using relations and functions
6. Writing and graphing equations of lines using points, slopes and intercepts
7. Writing and graphing direct variation equations
8. Using scatter plots to identify correlation and find best-fitting lines
9. Graphing a system of linear equations in two variables
10. Solving a system of linear equations in two variables

By the end of quarter 2, students should have an understanding of

11. Solving and graphing linear inequalities in one or two variables
12. Solving, graphing and using systems on linear inequalities
13. Solving and graphing absolute value equations and inequalities
14. Graphing absolute value functions
15. Graphing quadratic functions written in standard form, vertex form, and intercept form
16. Solving quadratic equations by factoring

Solving quadratic equations by taking square roots and using the quadratic formula

By the of quarter 3, students should have an understanding of

17. Using properties of exponents to evaluate and simplify expressions
18. Defining, graphing and using polynomial functions
19. Adding, subtracting, multiplying and dividing polynomials
20. Factoring polynomial expressions and solving polynomial equations
21. Evaluating *n*th roots of real numbers using radicals and rational exponents
22. Solving equations containing radicals or rational exponents
23. Finding inverse functions for both linear and nonlinear functions
24. Graphing square root and cube root functions
25. Finding and comparing standard deviations of data sets

By the end of quarter 4, students should have an understanding of

26. Writing and using inverse variation and joint variation models
27. Graphing rational functions and identifying asymptotes
28. Simplifying rational expressions
29. Solving rational equations
30. Identifying sources of bias in samples and survey questions
31. Choosing random samples and finding the margin of error for a sample
32. Using permutations and combinations to count the ways an event can happen
33. Calculating and using probabilities

Materials & Texts

MATERIALS

Graphing calculator
Supplemental work, practice sheets

TEXTS

Algebra 2: Concepts and Skills, Holt McDougal