Content Standard 1.0 Knowledge of Patterns, Algebra and Functions

Students will algebraically represent, model, analyze, and solve mathematical and real-world problems involving functional patterns and relationships.

Expectation 1.1
The student will model, analyze and apply linear functions.

Indicators

1.1.B.1	solve real world problems using linear equations and linear inequalities.
1.1.B.2	apply direct variation to solve real world problems.
1.1.B.3	analyze patterns of change in data to determine if a linear relationship appropriately models the data.
1.1.B.4	interpret the slope and *y*-intercept of a linear equation in the context of a real world problem.
1.1.B.5	represent the equation of a line in slope-intercept and point-slope form.
1.1.B.6	determine a linear trend line to a scatter plot of data.
1.1.B.7	apply linear functions to model data with a regression equation and make predictions using the function.
1.1.B.8	interpret and solve problems involving piece-wise functions.
1.1.B.9	determine the rate of change (slope) of a linear function represented numerically, algebraically, and graphically.

Expectation 1.2
The student will model, analyze and apply systems of linear equations and inequalities in two variables.

Indicators

1.2.B.1	model a real world problem using a system of equations.
1.2.B.2	solve a system of equations numerically, algebraically, graphically, and using matrices.
1.2.B.3	perform operations on matrices.
1.2.B.4	represent a system of inequalities numerically, algebraically and graphically.
1.2.B.5	solve a system of linear inequalities graphically.

Expectation 1.3
The student will model, analyze and apply quadratic functions.

Indicators

1.3.B.1   represent quadratic functions numerically, algebraically, and graphically
             and identify their properties.
1.3.B.2   analyze patterns of change in data to determine if a quadratic relationship
             appropriately models the data.
1.3.B.3   represent translations and dilations of quadratic functions numerically,
             algebraically, and graphically.
1.3.B.4   model data using quadratic functions.
1.3.B.5   simplify radical expressions.
1.3.B.6   solve quadratic equations by inverse operations, factoring, completing the
             square, and the quadratic formula.
1.3.B.7   apply quadratic functions to real world problems.
1.3.B.8   apply inverse variation to solve real world problems.
1.3.B.9   recognize the square root function as the inverse of the quadratic function.

Expectation 1.4
The student will model, analyze and apply exponential functions.

Indicators

1.4.B.1   represent exponential functions numerically, algebraically, and
             graphically.
1.4.B.2   identify properties of exponential functions.
1.4.B.3   represent translations of exponential functions numerically, algebraically,
             and graphically.
1.4.B.4   apply exponential functions to real world problems.
1.4.B.5   analyze patterns of change in data to determine if an exponential
             relationship appropriately models the data.
1.4.B.6   model data using exponential functions.
1.4.B.7   solve exponential equations algebraically and graphically.
1.4.B.8   recognize the logarithmic function as the inverse of the exponential
             function.

Expectation 1.5
The student will analyze functional relationships using the language of mathematics.

Indicators

1.5.B.1   describe functions using domain and range, independent and dependent
         variables, increasing, decreasing, constant, minimum, and maximum.
1.5.B.2   determine whether a relation that is expressed numerically or graphically is a
         function.
1.5.B.3   represent functions numerically, algebraically, and graphically.

Content Standard 5.0 Knowledge of Probability

Maryland Content Standard: Knowledge of Probability
Students will use experimental methods and theoretical reasoning to determine
probabilities, to make predictions, and to solve problems about events whose outcomes
involve random variation.

Expectation 5.1
The student will calculate experimental and theoretical probability.

Indicators

5.1.B.1   apply counting principles to determine the total number of outcomes for
         an event.
5.1.B.2   calculate the theoretical probability of an event.
5.1.B.3   determine the experimental probability of an event.
5.1.B.4   determine the conditional probability of an event.
5.1.B.5   define independent and dependent events.
5.1.B.6   determine probabilities for compound events.