

LOS ANGELES HARBOR MATH COMPETENCIES

Math 112 Competency

THE STUDENT WILL BE ABLE TO:

Add, subtract, multiply and divide whole numbers, fractions and decimals

Apply the order of operations using addition, subtraction, multiplication and division

Solve word problems involving whole numbers, fractions, decimals and percentages

Solve simple linear equations

Math 123A Competency

THE STUDENT WILL BE ABLE TO:

Add, subtract, multiply and divide integers, rational and irrational numbers.

Translate English mathematical sentences into algebraic expressions

Add, subtract, multiply and divide algebraic expressions

Add, subtract, multiply and divide algebraic expressions containing exponents

Demonstrate the use of scientific notation when multiplying and dividing real numbers

Solve a variety of first degree equations and inequalities.

Solve a variety of word problems involving first degree equations and inequalities

Compute the slope of a straight line. Draw graphs of straight lines and inequalities

Solve systems of equations in two variables by graphing.

Determine the degree of a polynomial. Add, subtract, multiply and divide polynomials

Find the Greatest common factor (GCF) of several algebraic expressions. Factor a variety of polynomials by use of the GCF, difference of perfect squares and trinomials techniques.

Math 123B Competency

THE STUDENT WILL BE ABLE TO:

Add, subtract, multiply and divide rational expressions.

Solve a variety of equations and inequalities involving rational expressions. Solve a variety of word problems involving rational expressions

Compute the slope of a straight line. Find the equation of a straight line given its slope and a point. Draw graphs of straight lines and inequalities. Demonstrate the use of the $f(x)$ notation

Simplify roots and radicals. Demonstrate the use of algebraic expression containing fractional exponents. Find the solution to equations involving radicals and fractional exponents

Solve second degree equations by factoring using the Greatest Common Factor (GCF), difference of perfect squares and trinomials, and use of the quadratic formula. Solve word problems involving second degree equations

Add, subtract, multiply and divide complex numbers

Math 123C Competency

THE STUDENT WILL BE ABLE TO:

Solve quadratic and other non-linear inequalities using factorization.

Write the composition of two functions. Find the equation of the inverse of a 1-1 function.

Write and graph horizontal and vertical translations of functions. Graph the reflection of 1-1 functions about the X and Y axis.

Identify and graph the equation of a parabola as a quadratic function.

Describe the domain and range of exponential and logarithmic functions. Graph exponential and logarithmic functions.

Solve equations involving exponential and logarithmic expressions. Solve word problems involving exponential growth such as the compound interest formula.

Describe the conic sections and their equations. Compute:

- a) the center and radius of a circle
- b) the vertex and axis of symmetry of a parabola
- c) the center and vertices of ellipses and hyperbolas.

Solve systems of equations in two and three variables by elimination, substitution and matrices including Cramer's method.

Describe sequences and series. Apply the sigma notation. Compute the common difference and ratio of arithmetic and geometric sequences respectively. Compute the sum of arithmetic and geometric sequences. Apply the binomial expansion formula to the n th term.

Elementary Algebra

Add, subtract, multiply and divide integers, rational and irrational numbers.

Translate English mathematical sentences into algebraic expressions

Add, subtract, multiply and divide algebraic expressions

Add, subtract, multiply and divide algebraic expressions containing exponents

Demonstrate the use of scientific notation when multiplying and dividing real numbers

Solve a variety of first degree equations and inequalities.

Solve a variety of word problems involving first degree equations and inequalities

Compute the slope of a straight line. Draw graphs of straight lines and inequalities
Solve systems of equations in two variables by graphing.

Determine the degree of a polynomial. Add, subtract, multiply and divide polynomials

Find the Greatest common factor (GCF) of several algebraic expressions. Factor a variety of polynomials by use of the GCF, difference of perfect squares and trinomials techniques.

Add, subtract, multiply and divide rational expressions.

Solve a variety of equations and inequalities involving rational expressions. Solve a variety of word problems involving rational expressions

Compute the slope of a straight line. Find the equation of a straight line given its slope and a point. Draw graphs of straight lines and inequalities. Demonstrate the use of the $f(x)$ notation

Simplify roots and radicals. Demonstrate the use of algebraic expression containing fractional exponents. Find the solution to equations involving radicals and fractional exponents

Solve second degree equations by factoring using the Greatest Common Factor (GCF), difference of perfect squares and trinomials, and use of the quadratic formula. Solve word problems involving second degree equations

Add, subtract, multiply and divide complex numbers

Intermediate Algebra

Sets: notation, union, intersection, complement, difference, intervals on the number line

Add, subtract, multiply and divide integers, rational and irrational numbers.

Translate English mathematical sentences into algebraic expressions

Add, subtract, multiply and divide algebraic expressions

Add, subtract, multiply and divide algebraic expressions containing exponents

Demonstrate the use of scientific notation when multiplying and dividing real numbers

Solve a variety of first degree equations and inequalities. Solve a variety of word problems involving first degree equations and inequalities

Compute the slope of a straight line. Draw graphs of straight lines and inequalities

Solve systems of equations in two variables by graphing.

Determine the degree of a polynomial. Add, subtract, multiply and divide polynomials

Find the Greatest common factor (GCF) of several algebraic expressions. Factor a variety of polynomials by use of the GCF, difference of perfect squares and trinomials techniques.

Add, subtract, multiply and divide rational expressions.

Solve a variety of equations and inequalities involving rational expressions. Solve a variety of word problems involving rational expressions

Compute the slope of a straight line. Find the equation of a straight line given its slope and a point.

Draw graphs of straight lines and inequalities. Demonstrate the use of the $f(x)$ notation

Simplify roots and radicals. Demonstrate the use of algebraic expression containing fractional exponents. Find the solution to equations involving radicals and fractional exponents

Solve second degree equations by factoring using the Greatest Common Factor (GCF), difference of perfect squares and trinomials, and use of the quadratic formula. Solve word problems involving second degree equations

Add, subtract, multiply and divide complex numbers

Solve quadratic and other non-linear inequalities using factorization.

Write the composition of two functions. Find the equation of the inverse of a 1-1 function.

Write and graph horizontal and vertical translations of functions. Graph the reflection of 1-1 functions about the X and Y axis.

Identify and graph the equation of a parabola as a quadratic function.

Describe the domain and range of exponential and logarithmic functions. Graph exponential and logarithmic functions.

Solve equations involving exponential and logarithmic expressions. Solve word problems involving exponential growth such as the compound interest formula.

Describe the conic sections and their equations. Compute:

a) the center and radius of a circle

b) the vertex and axis of symmetry of a parabola

c) the center and vertices of ellipses and hyperbolas

Solve systems of equations in two and three variables by elimination, substitution and matrices including Cramer's method.

Describe sequences and series. Apply the sigma notation. Compute the common difference and ratio of arithmetic and geometric sequences respectively. Compute the sum of arithmetic and geometric sequences. Apply the binomial expansion formula to the n th term.