

# ACT Math test questions:

BY MARY TAYLOR

## PRE-ALGEBRA/ELEMENTARY ALGEBRA

### Pre-Algebra (23%)

Basic operations using whole numbers, decimals, fractions, and integers

Place value

Square roots and approximations

The concept of exponents

Factors

Ratio, proportion, and percent

Linear equations in one variable

Absolute value and ordering numbers by value

Elementary counting techniques and simple probability

Data collection, representation and interpretation

Understanding simple descriptive statistics

### Elementary Algebra (17%)

Properties of exponents and square roots

Evaluation of algebraic expressions through substitution

Using variable to express functional relationships

Understanding algebraic operations

Solving of quadratic equations by factoring

## INTERMEDIATE ALGEBRA / COORDINATE GEOMETRY

### Intermediate Algebra (15%)

Understanding the quadratic formula

Rational and radical expressions

Absolute value equations and inequalities

Sequences and patterns

Systems of equations

Quadratic inequalities

Functions

Modeling

Matrices

Roots of polynomials

Complex numbers

### **Coordinate Geometry (15%)**

Graphing

Relations between equations and graphs: Points, lines, polynomials, circles and other curves

Graphing inequalities

Slope

Parallel and perpendicular lines

Distance

Midpoints

Conics

## **PLANE GEOMETRY / TRIGONOMETRY**

### **Plane Geometry (23%)**

Properties and relations of plane figures

Angle and relations among perpendicular and parallel lines

Properties of circles

Properties of Triangles

Properties of rectangles, parallelograms and trapezoids

Transformations

Concept of proof and proof techniques

Volume

Application of geometry to three dimensions

### **Trigonometry (7%)**

Understanding trigonometric relations in right triangles

Values and properties of trigonometric functions

Graphing trigonometric functions

Modeling using trigonometric functions

Use of trigonometric identities

Solving trigonometric equations

**Remember, ALL of the mathematics problems can be solved without using a calculator. In fact, some of the problems are best done without a calculator.**