



UCF Math Placement Test Study Guide

The Math Placement Test includes questions based on the following learning objectives. You may want to review these concepts prior to starting your test.

ALGEBRA LEARNING OBJECTIVES:

- Simplify algebraic expressions
- Find the power of a product
- Add and subtract square roots
- Evaluate and perform operations with higher roots
- Add and subtract polynomials
- Factor trinomials
- Factor the difference of squares
- Solve a formula for a variable
- Solve problems modeled by quadratic equations
- Solve radical equations
- Find and simplify a function's difference quotient
- Understand and use piecewise functions
- Find a function's average rate of change
- Find slopes and equations of parallel and perpendicular lines
- Graph functions involving a sequence of transformations
- Determine domains for composite functions
- Use the Linear Factorization Theorem to find polynomials with given zeros
- Solve rational inequalities
- Graph logarithmic functions
- Use logarithms to solve exponential equations
- Use the definition of a logarithm to solve logarithmic equations
- Solve applied problems involving exponential and logarithmic equations
- Model exponential growth and decay
- Solve problems using systems of linear equations
- Solve systems of linear equations in three variables

TRIGONOMETRY LEARNING OBJECTIVES:

- Convert between degrees and radians
- Recognize and use fundamental identities
- Use right triangle trigonometry to solve applied problems

- Use the signs of the trigonometric functions
- Understand the graph of $y = \sin x$, and graph variations of $y = \sin x$
- Understand the graph of $y = \tan x$, and graph variations of $y = \tan x$
- Understand and use the inverse sine function
- Find exact values of composite functions with inverse trigonometric functions
- Solve a right triangle
- Use the fundamental trigonometric identities to verify identities
- Use sum and difference formulas for cosines and sines
- Use the Law of Sines to solve oblique triangles
- Convert an equation from polar to rectangular coordinates
- Find the angle between two vectors
- Solve applications

PRECALCULUS LEARNING OBJECTIVES:

- Simplify complex rational expressions
- Decompose P/Q , where Q has repeated linear factors
- Solve nonlinear systems by substitution
- Perform matrix row operations
- Use inverses to solve matrix equations
- Evaluate a third-order determinant
- Graph ellipses centered at the origin
- Graph hyperbolas not centered at the origin
- Find particular terms of a sequence from the general term
- Use summation notation
- Find the common difference or write terms of an arithmetic sequence
- Write terms of a geometric sequence
- Expand a binomial raised to a power
- Evaluate limits from a graph
- Evaluate limits using limit rules