

Goshen College Mathematics Competency Exam Information

Since the ability to think quantitatively and reason accurately from data is a fundamental skill for every educated person, all students must meet a mathematics competency requirement. Competency may be established in three ways: SAT math score of 550 or ACT math score of 23, college credit in mathematics at the Finite Mathematics level or higher, or a passing score (60% or higher) on the Goshen College math competency exam. Students who do not meet the minimum competency requirement must pass Math 105, Understanding Our Quantitative World, before taking general education courses in mathematics or natural science.

The Goshen College math competency exam is offered to incoming students during registration days and to all students at or just before the start of the fall and spring semesters. The exam is completed online in a proctored on-campus computer lab. You should come with a scientific calculator (a graphing calculator is not needed) and a pencil or pen for scratch work.

The following table is a summary of the skills tested by the exam and an indicator of the weight given for each topic. Most of these skills are developed during high school courses in algebra, geometry, and science.

Topic: Skill	Points
Computation: Use a calculator to compute sums, differences, products, quotients, powers, and trigonometric, exponential, and logarithmic functions. Use estimation and hand computations to verify reasonableness of calculated results.	2
Arithmetic: Translate verbal scenarios into appropriate calculations involving addition, subtraction, multiplication, and/or division.	2
Metric System: Provide order of magnitude estimates of lengths, weights, and capacities using metric units.	2
Geometry: Translate verbal scenarios into appropriate calculations using concepts of rectangular and circular area and perimeter.	2
Proportions: Translate verbal scenarios into appropriate calculations using concepts of proportions.	3
Functions: Calculate the values of functions described by formulas, tables, graphs, and words.	4
Functions: Describe verbally, graphically, or symbolically the relationship between the function $f(x)$ and the transformed functions $f(x+a)$, $f(x) + a$, $f(ax)$, and $af(x)$.	1
Data Displays and Description: Extract information from such graphical displays as bar charts, pie graphs, tables, scatter plots, and histograms; calculate, estimate, and interpret means, medians, standard deviations, and quartiles.	8
Linear Functions: Interpret, use, and translate among line graphs, constant rate of change, and linear functions; symbolically manipulate linear equations; relate data to a regression line model.	3
Exponential Functions: Determine values and doubling times in constant growth rate scenarios.	1
Periodic Functions: Determine periods, frequencies, amplitudes, and values of periodic functions.	1
Probability: Count the number of possibilities and determine probabilities in verbal scenarios.	3
Random Samples: Detect bias and interpret confidence intervals.	2