

Mathematics 10

Course Syllabus



Mathematics 10 is an asynchronous, self-paced course. This means that you can take the course wherever you want, at any time of day, and go at your own speed.

Meet with Mentor

You will be required to meet online with your mentor no fewer than 20 times, for 30 minutes each time.

As follows:

- Early in each unit **and several times during a unit**
- Before you write each assessment
- Before you write the midterm exam
- Before you write the final exam

Note: *The timing of mentor meetings is identified in the course.*

Time Requirement

You have 24 months to complete the course work and write all assessments.

You should expect to dedicate 200 hours to this course, plus study time. For example, if you want to complete this course in a semester, you should spend at least 15 hours per week.

You will need to factor your mentor's availability into planning your timeline, as they may or may not be able to meet with you if you make a last-minute request. Remember to be respectful when arranging meetings.

Technical Requirements

- A PC, laptop or Chromebook (a phone can be used, but may be less than ideal).
- Phone or camera to photograph/scan work, which can then be uploaded into the LMS (Moodle)
- An internet connection.



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Course Outline

Your course grade will be based on the following breakdown:

Unit 1 Measurement: 20%

Unit 2 Algebra and Numbers: 20%

Midterm Exam: 10%

Unit 3 Relations and Functions: 25%

Unit 4 Financial Mathematics: 15%

Final Exam: 10%

Unit 1 Lessons:

- 1.1 Introduction to Linear Measurement
- 1.2 Conversion of Imperial Units of Measure
- 1.3 Measuring Length and Distance
- 1.4 Relating SI and Imperial Units Part 1
- 1.5 Relating SI and Imperial Units Part 2
- 1.6 Surface Area of Right Pyramids
- 1.7 Surface Area of Right Cones
- 1.8 Volume of Right Pyramids and Right Cones
- 1.9 Surface Area and Volume of a Sphere
- 1.10 Solving Surface Area and Volume Problems of Composite Objects
- 1.11 The Tangent Ratio Part 1
- 1.12 The Tangent Ratio Part 2
- 1.13 Using the Tangent Ratio to Calculate Length and Distance
- 1.14 Determining an Inaccessible Height
- 1.15 Sine and Cosine Ratios Part 1
- 1.16 Sine and Cosine Ratios Part 2
- 1.17 Using Sine and Cosine Ratios to Calculate Length and Distance
- 1.18 Applying the Trigonometric Ratios
- 1.19 Solving Problems Involving More than One Right Triangle

Unit 2 Lessons:

- 2.1 Common Factors of Polynomials Part 1
- 2.2 Common Factors of Polynomials Part 2
- 2.3 Modeling Trinomials as Binomial Products
- 2.4 Polynomials of the Form $x^2 + bx + c$ Part 1
- 2.5 Polynomials of the Form $x^2 + bx + c$ Part 2
- 2.6 Multiplication of Complex Binomials
- 2.7 Factoring Polynomials of the Form $ax^2 + bx + c$
- 2.8 Multiplication of Polynomials
- 2.9 Factoring Special Polynomials
- 2.10 Factoring Polynomials with Two Variables
- 2.11 Estimating Roots
- 2.12 Irrational Numbers
- 2.13 Mixed and Entire Radicals
- 2.14 Fractional Exponents and Radicals
- 2.15 Negative Exponents
- 2.16 Laws of Exponents

Unit 3 Lessons:

- 3.1 Representing Relations
- 3.2 Properties of Functions Part 1
- 3.3 Properties of Functions Part 2
- 3.4 Interpreting and Sketching Graphs
- 3.5 Graphing Data
- 3.6 Graphs of Relations and Functions Part 1
- 3.7 Graphs of Relations and Functions Part 2
- 3.8 Scatterplots and Line of Best Fit
- 3.9 Equation of the Line of Best Fit
- 3.10 Properties of Linear Relations
- 3.11 Interpreting Graphs of Linear Functions Part 1
- 3.12 Interpreting Graphs of Linear Functions Part 2
- 3.13 Slope of a line
- 3.14 Slopes of Parallel and Perpendicular Lines
- 3.15 Graphs of Linear Functions
- 3.16 Slope-Intercept Form
- 3.17 Slope-Point Form Part 1
- 3.18 Slope-Point Form Part 2
- 3.19 General Form
- 3.20 Systems of Equations
- 3.21 Solving Systems of Equations Graphically
- 3.22 Using Graphing Technology
- 3.23 Solving Systems of Equations by Substitution
- 3.24 Solving Systems of Equations by Elimination
- 3.25 Properties of Systems of Linear Equations

Unit 4 Lessons:

- 4.1 Unit Pricing
- 4.2 Comparing Unit Pricing
- 4.3 Currency Exchange
- 4.4 Using Currency Exchange
- 4.5 Wages and Salary Part 1
- 4.6 Wages and Salary Part 2
- 4.7 Net Pay Part 1
- 4.8 Net Pay Part 2
- 4.9 Other Forms of Income Part 1
- 4.10 Other Forms of Income Part 2
- 4.11 Budgets Part 1
- 4.12 Budgets Part 2