MATH 20-1, Mathematics 20-1

5 credits, 6 hours lecture

Course Description

Topics covered include oblique triangle trigonometry; perform all operations (addition, subtraction, multiplication, division) on radicals and rational expressions; solve radical, rational & quadratic equations; analyze & solve applications involving arithmetic & geometric sequence & series; graph, analyze and apply quadratic, absolute value & reciprocal functions; solve systems involving both linear and quadratic equations; graph, analyze and solve linear and quadratic inequalities.

Alberta Education Course Equivalency: Math 20-1

Pre and Co-requisites

Prerequisite: Math 10, Math 10C, or Math 20-2, or permission from the Program Chair

Course Learning Outcomes (CLOs)

Upon successful completion of the course, the student shall be able to:

CLO1 Trigonometry

a. Demonstrate an understanding of angles in standard position [0^{o} to 360^{o}].
b. Solve problems, using the three primary trigonometric ratios for angles from 0° to 360° in standard position.
c. Solve problems, using the cosine law and sine law
d. change.

CLO2 Quadratics

a. Analyze quadratic functions of the form $y = a(x - p)^2 + q$ and determine the:
   Vertex, domain and range, direction of opening, axis of symmetry, x and y intercepts
b. Analyze quadratic functions of the form $y = ax^2 + bx + c$ to identify characteristics of the corresponding graph, including: vertex, domain and range, direction of opening, axis of symmetry, x and y intercepts
c. Analyse quadratic functions using transformations
d. Convert quadratic functions from standard form to vertex form
e. Factor quadratic expressions
f. Solve quadratic equations by factoring, completing the square, quadratic formula

CLO3 Radical Expressions and Equations

a. Solve problems that involve operations on radicals and radical expressions with numerical and variable radicands.
b. Solve problems that involve radical equations (limited to square roots).

CLO4 Rational Expressions and Equations

a. Determine equivalent forms of rational expressions
b. Perform operations on rational expressions
c. Solve problems that involve rational equations

CLO5 Absolute value and Reciprocal Functions

a. Demonstrate an understanding of the absolute value of real numbers
b. Graph and analyze absolute value functions to solve problems.
c. Graph and analyze reciprocal functions

CLO6 Systems of Equations and Inequalities

a. Solve, algebraically and graphically, problems that involve systems of linear-quadratic and quadratic-quadratic equations in two variables.

CLO7 Linear and Quadratic Inequalities

a. Solve problems that involve linear and quadratic inequalities in two variables.
b. Solve problems that involve quadratic inequalities in one variable

Evaluation

Assessment Type	Percentage
Assignments	15%
Quiz	20%
Midterm	25%
Final Exam	40%
Total	100%

Course Completion Requirements

Minimum passing mark of 50% or C- is required for progression.

Grading Scale

4.0 Grade Scale	Alpha Grade	Percentage Grade
4.0	A+	93-100
4.0	A	85-92.9
3.7	A-	80-84.9
3.3	B+	77-79.9
3.0	B	74-76.9
2.7	B-	70-73.9
2.3	C+	67-69.9
2.0	C	64-66.9
1.7	C-	60-63.9
1.3	D+	55-59.9
1.0	D	50-54.9
0.0	F	0-49.9

Land Acknowledgement

We respectfully acknowledge that Keyano College is on Treaty No. 8 Territory, the ancestral and traditional territory of the Cree, Dene, and Métis people.

Review Date: March 4, 2024