

ACADEMIC DATE: September 1, 1998 Division: AC

SCIENCE & MATHEMATICS New Course: B: Department: SCIE

Revision of Course Information form: X

DATED: February 1993

PRECALCULUS

MATH 110

Semester Credit Subject & Course No. Descriptive Title

Summary of Revisions: Sept. 1998

F: Calendar Description

Revisions to items F, H and N

This is a one semester course for students who wish to prepare for MATH 120. Emphasis is placed on the graphing and solution of equations involving polynomial, rational, circular, trigonometric, logarithmic and exponential functions. This course is taught using a graphing calculator.

g. calculator. H: Course Pre-requisites: MATH 101 with a B- or equivalent G: Type of Instruction: Hours Per Week Per Semester

Lecture 6 Hrs. Laboratory Hrs. Seminar Hrs. Clinical Experience Hrs. Field Experience Hrs. Practicum Hrs. Shop Hrs. Studio Hrs. Student Directed Learning Hrs. Other

J: Course for which this is a pre-requisite: MATH 120

K: Maximum Class Size: 35

M: Transfer Credit: TOTAL 6 HOURS

Requested _____ Granted _____

Specify Course Equivalents or Unassigned Credits as Appropriate: College Credit Transfer College Credit Non-Transfer

U.B.C. MATH 110/120=Math 111 S.F.U. Math 100(?)

U. Vic. Math 012(0) OTHER:

Handwritten signatures and names: P.H. Onyiah, Dean, Registrar, Registrar

Textbooks and materials to be purchased by students

(Use Bibliographic Form):

calculus = functions and graphs, 2nd edition, Longman Maths

Arnold, Postner, Gwerna: Pre

so required

A graphing calculator is a

Course Objectives:

Upon completion of MATH 110 the student should be able to:

FUNCTIONS

understand the concept of function and be able to determine which relations are functions; by an examination of the equation and/or the graph of the relation.

on functions for which the inverse can be determined. The domain of any function and the range of any function are to be determined or for which the graph can be easily sketched.

blem'.

- extract the functional rule from a 'word problem'.

and understand the graphical implication of the

- determine if a function is odd or even and state the property.

graphs of the following functions:

sketch the graphs

$y = x^3, y = |x|, y = \sqrt{x}, y = \frac{1}{x}, y = \frac{1}{x^2}, y = \sqrt{a^2 - x}$

$y = x^2,$

s of the following variations of the above functions

and the graphs

$+ c, y = f(x + c), y = -f(x), y = cf(x).$

$y = f(x)$

apply the above transformations to any given graph of a function

graph of a function in order to find the equation of the function

sketch the graph

from a graph of a function in order to find the equation of the function

sketch the graph of a function in order to find the equation of the function

from a graph of a function in order to find the equation of the function

sketch the graph of a function in order to find the equation of the function

determine the equation of a quadratic function from its graphical properties

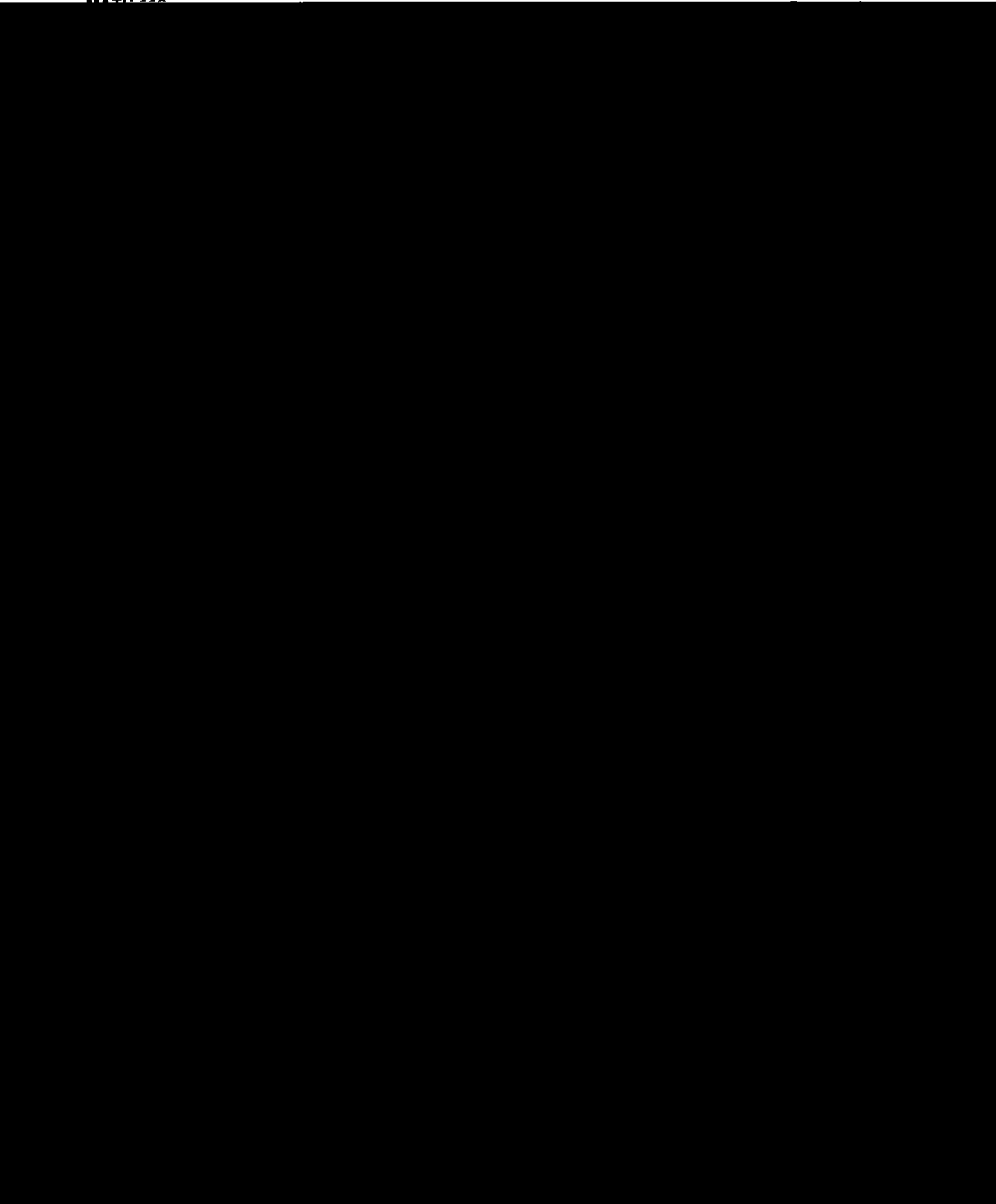
function.

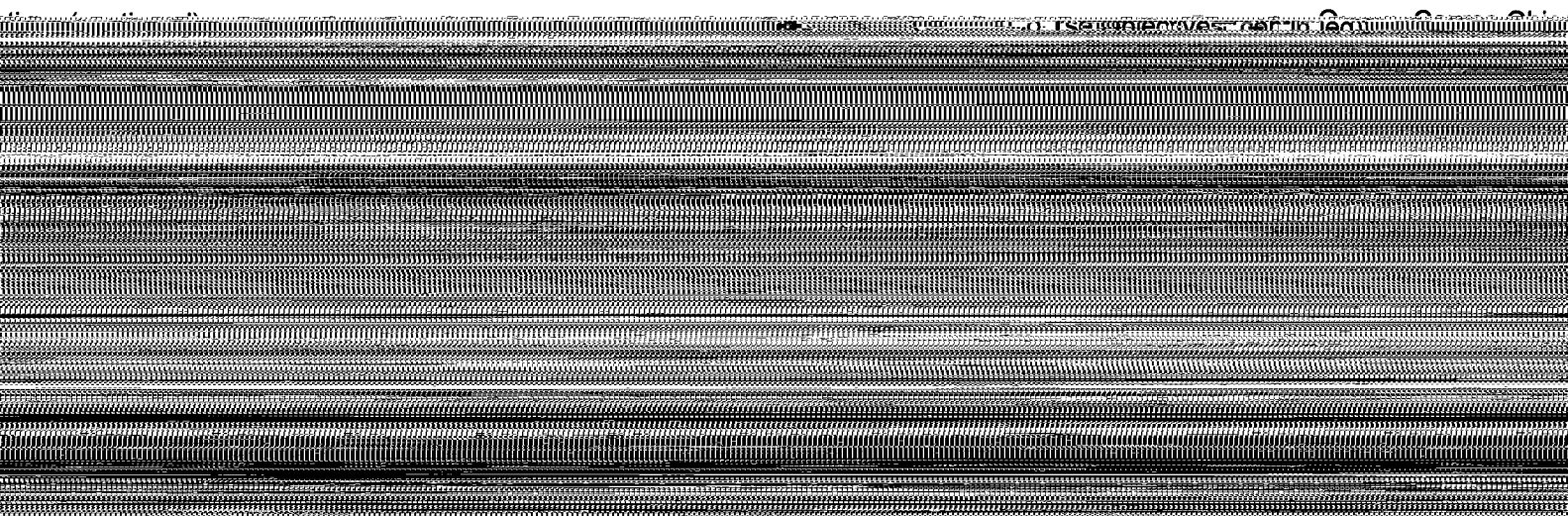
- solve maximum-minimum 'word problems' involving a quadratic function.

add, subtract, multiply and divide functions and be able to determine the domains of the

functions.

resulting functions.





Course Objectives (continued)

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Course content

1. FUNCTIONS

- definition
- graphing
- the quadratic function
- combining functions
- inverse functions

2. POLYNOMIAL AND RATIONAL FUNCT

- division of polynomials
- the remainder theorem and factor the
- zeros of polynomials
- graphing polynomial functions
- graphing rational functions

3. EXPONENTIAL AND LOGARITHMIC FUNCTIONS

- the exponential functions and their graphs
- the logarithmic functions and their graphs
- properties of the logarithmic functions
- exponential and logarithmic equations
- applications

THE TRIGONOMETRIC FUNCTIONS

ic functions of angles and real numbers
 aphs
 problems

- the trigonometri
- trigonometric gr
- right triangle pro

TRIGONOMETRY AND APPLICATIONS

entities
 equations
 and subtraction formulas
 double formulas
 the product-to-sum and sum-to-product formulas
 the inverse trigonometric functions
 the Law of Sines and the Law of Cosines

5. ANALYTIC TRIGO

- trigonometric id
- trigonometric eq
- the addition a
- the multiple a

6. PARABOLAS, ELLIPSES AND HYPERBOLAS

7. SYSTEMS OF EQUATIONS

- non-linear systems of equations
- linear systems of equations in mor
- partial fractions

