INTELLIGENT TUTOR™ CONCEPTS AND SKILLS SERIES

INTRODUCTORY CALCULUS

(c) 1988-2003 Intelligent Software, Inc.

Windows Network Version

INTELLIGENT SOFTWARE, INC.
9609 Cypress Ave.
Munster, IN 46321
(219) 923-6166

Program Summary

Objective

INTRODUCTORY CALCULUS is a complete and self-contained course designed for students and others engaged in self-study. Using graphics and animation, the program's tutorials will help students learn the concepts and ideas of calculus, and learn how to apply these to solving problems.

Level

Grades: 11-12
Prerequisite: Intermediate Algebra

Minimum Computer Requirements

* 486 IBM or compatible PC with 8MB of RAM
* Windows 95, Windows 98, Windows 2000, or Windows NT
* 10MB of free hard disk space

Welcome to Introductory Calculus

Welcome to INTRODUCTORY CALCULUS in the INTELLIGENT TUTOR™ Concepts and Skills Series!

INTRODUCTORY CALCULUS is a complete and self-contained course designed especially for students and others engaged in self-study. It will allow you to work at your own pace, using easy to follow tutorials and problem solving exercises.

INTRODUCTORY CALCULUS was designed by math educators, and is comprehensive yet simple to use. It covers all the topics normally taught in a one-year course in introductory calculus. Our goal is to build your math skills and make you more confident about using math in your everyday life, both inside and outside the classroom.

The lessons in INTRODUCTORY CALCULUS will provide you with a dynamic and unique learning experience. Graphics and animation are used throughout the lessons to present the ideas of math clearly and concretely.

Although the lessons are designed to be worked in order, you can study them in any order you wish. Easy to use menus allow you to go directly to any of the lessons in the program.

After working with INTRODUCTORY CALCULUS in our Concepts and Skills Series, you might be interested in INTRODUCTORY CALCULUS in the Practice and Review Series. It contains a wide variety of drill and practice exercises, and sample tests that will give you a profile of your overall skill level in calculus.

Topics Covered

PREREQUISITES FOR CALCULUS
Review of Powers and Exponents
Evaluating Functions
The Coordinate System
The Slope of a Line

INTRODUCTION TO DIFFERENTIAL CALCULUS
The Derivative
Derivative of Monomials
Derivative of Sum of Monomials
Product Rule
Quotient Rule

MORE DIFFERENTIAL CALCULUS
The Chain Rule
Higher Order Differentiation
Implicit Differentiation
Min/Max of Quadratic Functions
Min/Max Word Problems

INTRODUCING INTEGRAL CALCULUS
The Integral
Integration of Monomials I
Integration of Monomials II
Integration of Sum of Monomials
Integration of du/u

MORE INTEGRAL CALCULUS
Area Under a Curve
Integration by Parts

TRIG, EXPONENTIAL, AND LOG FUNCTIONS
Derivative of Trig Functions: Proofs
Derivative of Trig Functions:
Integration of Trig Functions
Differentiation/Integration of e^u
Derivative of a^nx

ADVANCED TOPICS
Solids of Revolution
L'Hospital's Rule
Convergence/Divergence of Series

Installing the Program

This program is a network version. It is meant to be installed with the INTELLIGENT TUTOR™ recordkeeping and management software included on the INTELLIGENT TUTOR™ CD-ROM.

Please refer to the installation instructions entitled "INTELLIGENT TUTOR™ Recordkeeping System" that were contained in the manila envelope you received with this package.

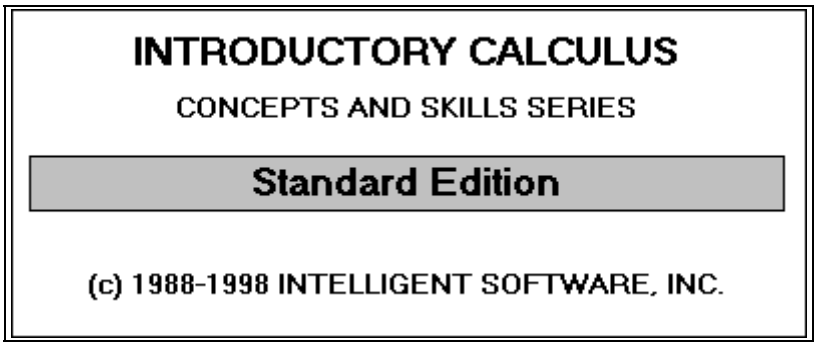
Starting the Program

Step 1 Click the **Start** button on the Windows taskbar. The Start menu opens.

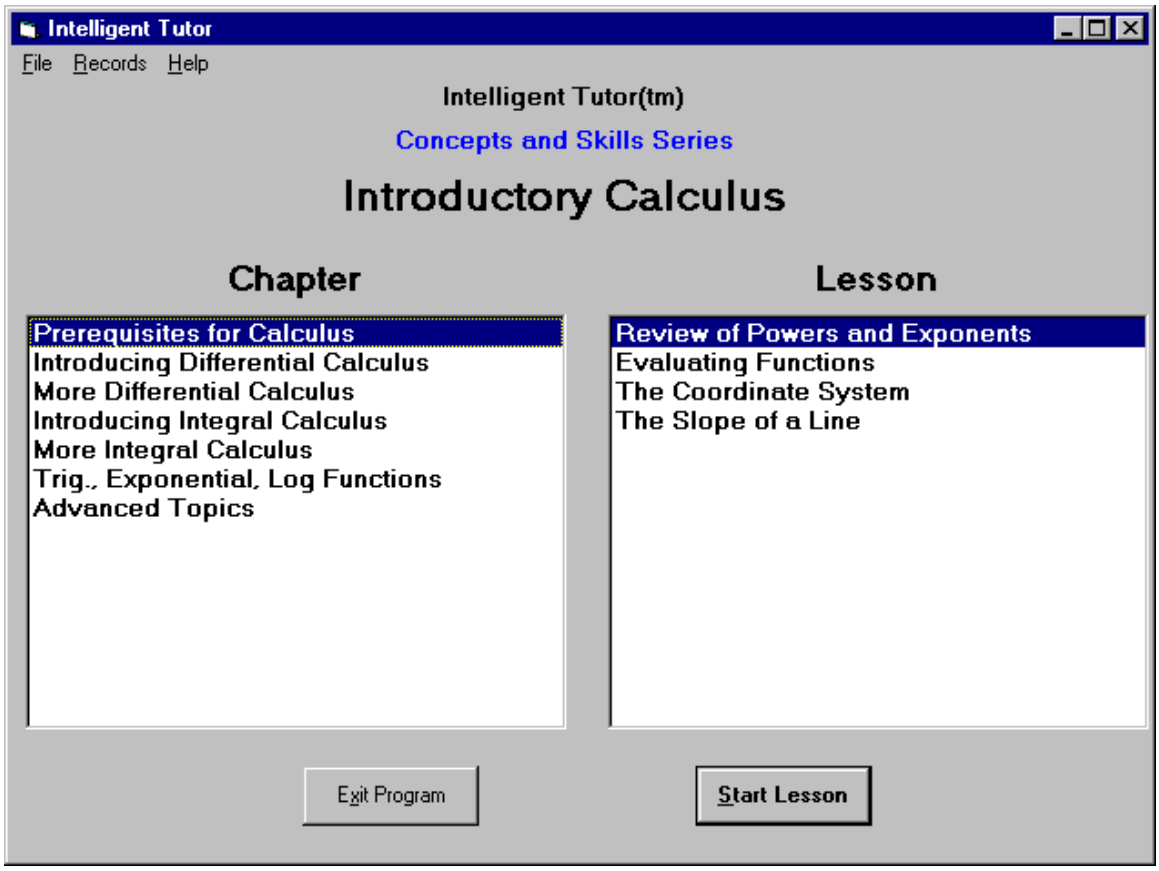
Step 2 Choose **Programs**. The Programs folder opens.

Step 3 Choose **Intelligent Tutor**.

Step 4 Click **Calculus Concepts**. The program will then begin, and the title screen (shown below) will appear. To move on to the program menu, click the title screen window, or press ENTER.



Using the Program



The program menu (shown above) is the starting point for your study of calculus. The **CHAPTER** window shows the chapters in the course. The **LESSON** window shows the lessons in the current highlighted chapter. To see a list of the lessons in a different chapter, click that chapter in the **CHAPTER** window.

To study a lesson, click the lesson in the **LESSON** window. Then click the **START LESSON** button at the bottom. Your lesson will then begin!

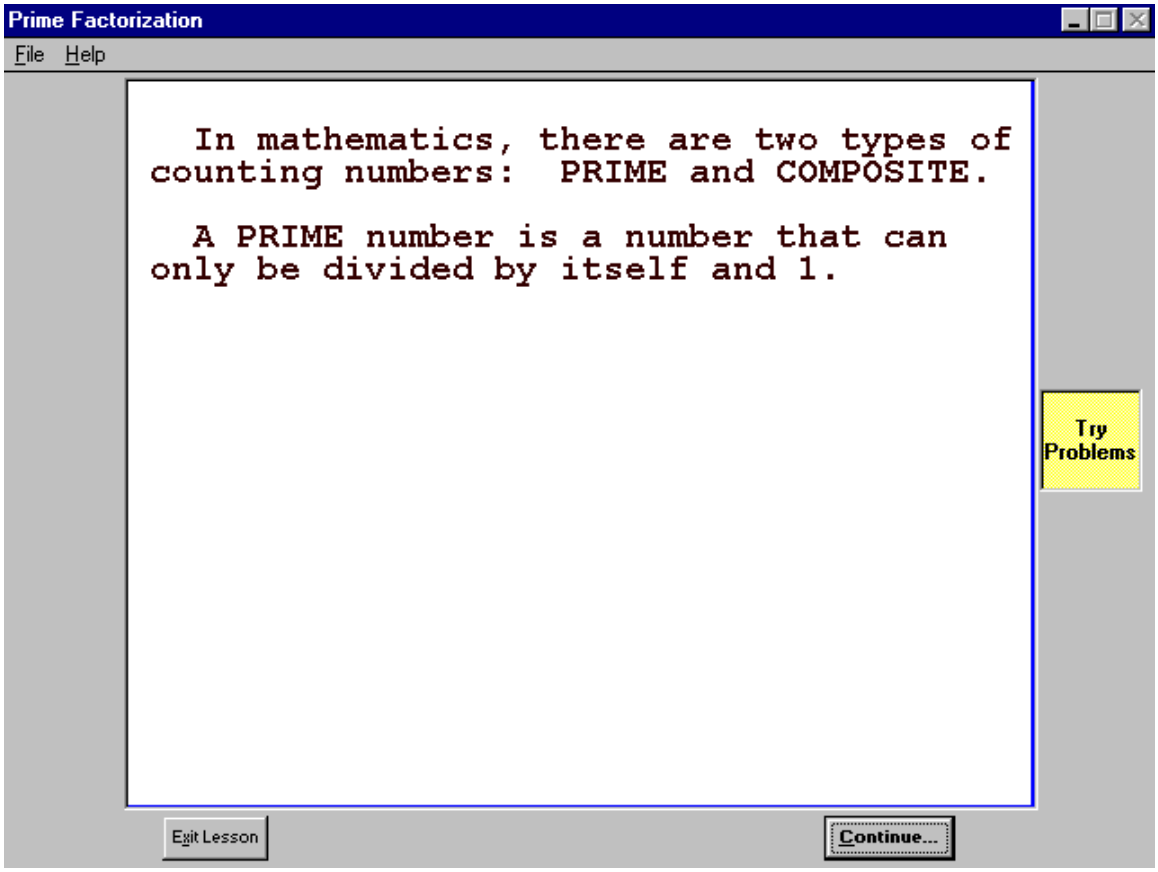
The beginning student is encouraged to work the chapters and lessons in order. But the program gives you the freedom to study the lessons in any sequence you wish.

As you work your way through lessons, and try your hand at solving problems, you may wish to see a summary of how well you are doing in the current session. The RECORDS menu allows you to see a summary of your performance in the current session. It is explained later in this manual.

Working a Lesson

After entering a lesson, you can move through the lesson at your own pace by clicking the "**CONTINUE...**" button at the bottom of the window. To return to the program menu click the "**EXIT LESSON**" button at the bottom of the window. To restart the current lesson use the **File** menu and select "**Restart Lesson**".

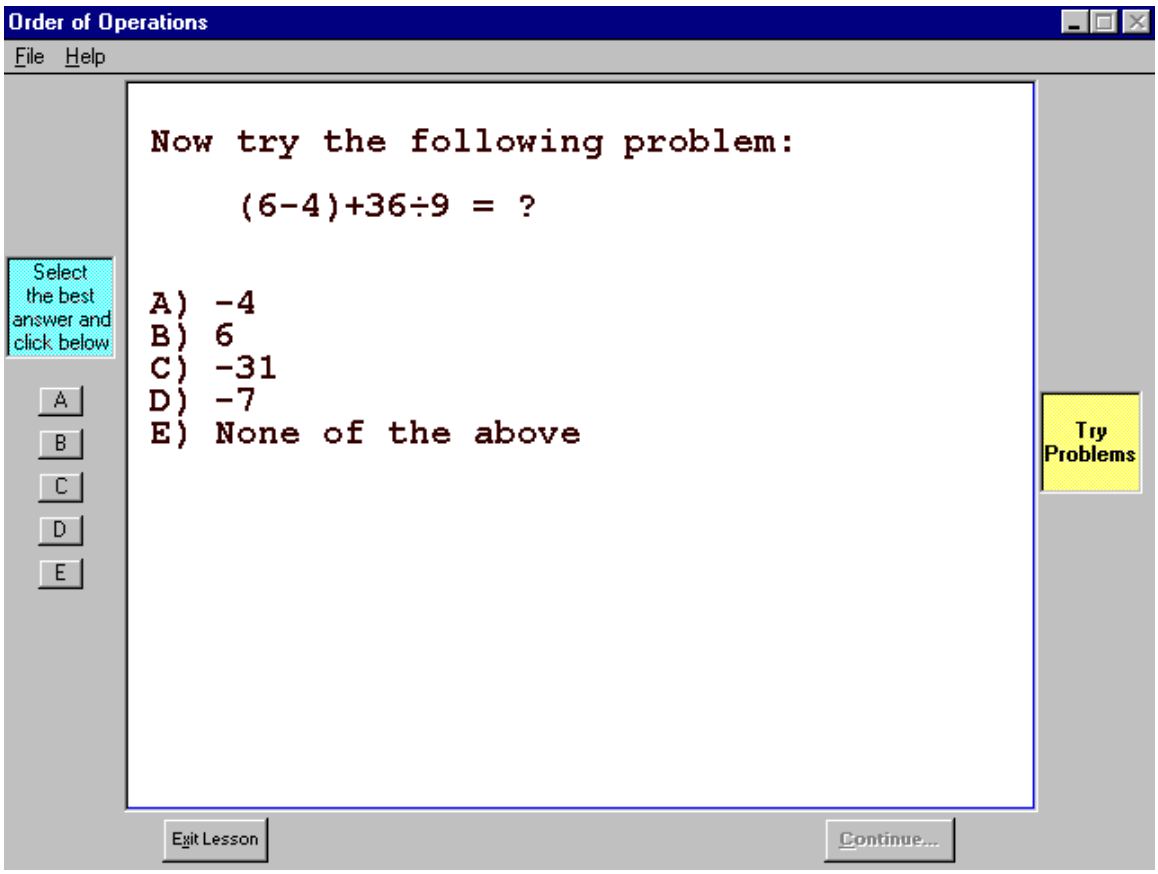
Most lessons have a similar format. First, the main concepts and ideas are presented. Then, one or more examples are presented to illustrate the concepts. After seeing these you will be asked if you would like to see another example. If you click "Yes" you will be shown another example. You will be able to see as many additional examples as you wish. If you click "No" you will be shown a problem to solve.



Here's a tip: When you are in a lesson, if you wish to go straight to solving problems click the "Try Problems" button in the right margin.

Working a Lesson (continued)

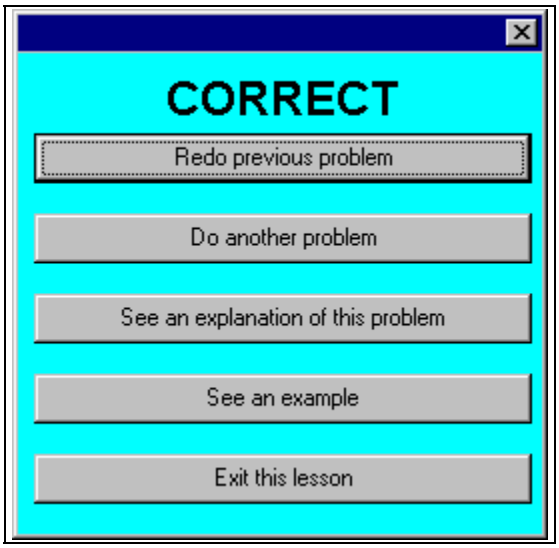
Trying to solve problems is one of the best ways for you to build your math skills, so we encourage you to spend some time on problem solving in each of the lessons you study. After trying a problem you'll have a chance to see the program solve the problem you just tried.



When the program presents a problem for you to solve, the possible answer choices will be displayed in a multiple choice format. To select an answer, click one of the answer choice buttons in the left margin.

The program will respond by telling you if your answer was correct or incorrect. The options available to you at this point are shown below.

Working a Lesson (continued)



After doing a problem, select one of the options shown to the left.

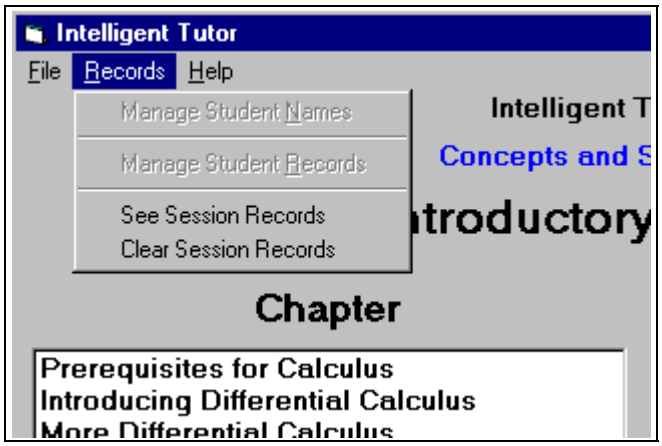
Most of the choices are self-explanatory.

If you did not solve the problem correctly, and would like to see how it can be solved, select the third option choice: "**See an explanation of this problem**".

Summary of How to Navigate a Lesson

In order to do this, then...	Do This
Proceed sequentially through a lesson	Click the "Continue..." button
Go directly to doing problems	Click the "Try Problems" button in the right margin
Select an answer to a problem	Click one of the answer choice buttons (A, B, C, D, E) in the left margin
Restart the current lesson	Choose "Restart Lesson" from the File menu
Return to the program menu	Click the "Exit Lesson" button, or choose "Return to Menu" from the File Menu

Looking at Your Performance in the Current Session



The **RECORDS** menu allows you to see your performance during the current session.

Select "See Session Records" to see your performance.

Select "Clear Session Records" to erase this sessions records.

The screen below shows how the current session's records are displayed.

