Tutorial Guide

Tutorial 1: Introduction to Java and Visual Café

1. How to use the Visual Café programming environment.
2. How to construct a basic Applet.
3. How to construct buttons and labels.
4. How to create basic interactions between components using the Interaction Wizard

Tutorial 2: Making a Graphing Calculator

1. Swing Components.
2. How to use MathGrapher, SymbolicFunction, SymbolicParametricCurve, and MathTextField objects..
3. The syntax of a method call.
4. How to insert your own code into a Visual Café program

Tutorial 3: Working with Objects

1. How to create objects and manipulate them.
2. What a constructor is.
3. How to use a JTextArea , a JScrollPane, and a JPanel.
4. How to handle Mouse events.
5. How to use an "**if**" structure.
6. How to use a "**for**" loop.

Tutorial 4: Designing your own Objects

1. How to plot points on a MathGrapher object.
2. How to handle Mouse events on a MathGrapher object.
3. How to create your own class.
4. How to create constructor methods.
5. How to create general methods.
6. What static variables and static methods are.

Tutorial 5: Inheritance

1. How to use inheritance to make it easier to reuse code.
2. How to override an inherited method.
3. How to create a custom function.

Tutorial 6: Arrays and the MathTable

1. How to create and initialize an array.
2. How to use the MathTable.

Tutorial 7: A Composition Game

1. How to use the RandomPLFunction component.
2. How to create new functions from old.
3. How to generate and use random numbers using the Math.random( ) method.
4. How to use the switch decision structure.
5. How to create a sample mathematical activity that teaches about composition of functions.

Tutorial 8: Animation

1. How to put animation into an applet.
2. How to use the Ellipse component.

Tutorial 9: Tangent Lines and Secant Lines

1. How to use the TangentLine and SecantLine components.
2. How to construct an activity to explore the definition of the derivative.

Tutorial 10: The FunctionTable and the ParametricTable

1. How to use the FunctionTable and ParametericTable components.

Tutorial 11: The PolygonalCurve

1. How to use the PolygonalCurve class.

Tutorial 12: The SlopeField

1. How to use the SlopeField component.

Tutorial 13: The PiecewiseLinearFunction, SplineFunction, and SplineCurve

1. How to use the PieceWiseLinearFunction, SplineFunction, and SplineCurve classes.

Tutorial 14: The Java Numerical Library and Working with Matrices

1. How to use Java Numerical Library.
2. How to work with matrices.

Tutorial 15: The BigInteger Class

1. How to use the BigInteger class.
2. How do some computations in Number Theory.

Tutorial 16: While Loops

1. How to use a while loop.
2. How to "erase" a graphic.
3. How to use the getBackground and getSize methods.

Tutorial 17: Strings

1. How to compare two Strings to see if they are equal.
2. How to manipulate Strings.

Tutorial 18: StringBuffer and StringTokenizer classes

1. How to use the StringBuffer class..
2. How to use the StringTokenizer class.
3. How to simulate a deck of cards.