EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
TRAINING MATERIALS DIRECTED TO BUSINESS,
ARTIFICIAL INTELLIGENCE, AND MATHEMATICAL
PROCESSING APPLICATIONS

In 1996 the Patent and Trademark Office (PTO) issued the Examination Guidelines for Computer-Related Inventions (Guidelines). Following issuance of the Guidelines, the PTO prepared and published training materials illustrating how to apply them.

Recently the PTO determined that additional training materials were needed to address how to apply the Guidelines in the areas of business, artificial intelligence and mathematical processing applications. Each of these three areas has shown a high growth rate and increased examining complexity. Thus, the following five examples were prepared to illustrate how to apply the Guidelines in these areas.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Mutual Fund

The disclosure relates to a computerized method of evaluating investment risk factors between a plurality of mutual funds and optimizing an investment value to be distributed among the funds. The specification recites a general purpose digital computer suitably programmed to accomplish the method. No specific hardware is disclosed and no computer listing is provided, only high level flow diagrams and descriptions of the desired functionality. The specification contains numerous formulas which are used to calculate risk factors, distribution amounts, time periods, performance data on past transactions etc. These are described in great detail and it is noted that it is well within the skill of a programmer in the art to create the programs to accomplish the required calculations. The specification indicates that communication between the investor, and a broker/fund manager takes place through the system. No specific form of communication is disclosed but the specification implies that such communication is part of the computer system.

The method involves storing in the computer memory data representing various mutual funds (identifiers) as well as risk ranking factors for each fund. Individual investor profiles are established for a particular time frame and these data are also stored in the computer. The method is implemented when an investor specifies a dollar amount to be invested. The computer then calculates the optimal disbursement of the allocation between various funds to meet the investor profile previously established.

The disclosure presents several embodiments which act to: (1) merely advise the investor on possible investment strategies, (2) prepare a report of investment strategies to be incorporated into a monthly investor account summary, or (3) control an automated scheme (computer controlled) to buy and sell shares of mutual funds in order to invest according to the optimized profile.

Claim 1

A computerized method of allocating funds for a mutual fund among a plurality of funds in a group, comprising the steps of:

a.   receiving at least one fund identifier for each of said plurality of funds;

b.   receiving at least one risk ranking factor for each of said plurality of funds;

c.   receiving at least one set of allocation parameters which correspond to the desired allocation of funds relative to a profile of said ranking factors;

d.   storing the fund identifiers, the risk ranking factors and the allocation parameters on a computer readable medium;

e.   receiving an initial investment value which is to be invested in the funds;

f.   receiving an incremental investment allotment value and a period for the incremental investment allotment value;

g.   receiving an indication of allowable level of investor risk; and

h.   using the stored fund identifiers, the risk ranking factors and the allocation parameters in combination with the initial investment value, the incremental investment allotment value, the period for the incremental investment allotment value, and the indication of allowable level of investor risk to provide an optimum account allocation between the funds in the group.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Mutual Fund

Table for Claim 1

BOX 2	Q.2a. Does disclosed invention have practical application?	YES	GoTo: Q.2b	Note 1
	Q.2b. Is disclosed invention in technological arts?	YES	GoTo: Q.6a	Note 2
BOX 6	Q.6a. Is claimed invention a computer program *per se*?	NO	GoTo: Q.6b	
	Q.6b. Is claimed invention a data structure *per se*?	NO	GoTo: Q.6c	
	Q.6c. Is claimed invention non-functional descriptive material?	NO	GoTo: Q.6d	
	Q.6d. Is claimed invention a natural phenomenon?	NO	GoTo: Q.8	
BOX 8	Q.8. Is claimed invention a series of steps to be performed on a computer?	YES	GoTo: Q.12	
BOX 9	Q.9. Is claimed invention a product for performing a process?		GoTo:	
BOX 10	Q.10. Is claimed invention a specific machine or manufacture?		GoTo:	
BOX 12	Q.12a. Does process have post-computer process activity?	NO	GoTo: Q.12b	
	Q.12b. Does process have pre-computer process activity?	NO	GoTo: Q.13a	Note 3
BOX 13	Q.13a. Does process manipulate abstract idea w/o limitation to a practical application?	NO	GoTo: Q.13b	
	Q.13b. Does process solve math problem w/o limitation to a practical application?	YES	GoTo: END	Note 4

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Mutual Fund

Table Notes for Claim 1

Note 1:   Disclosed invention optimally allocates funds among a plurality of mutual funds.

Note 2:   Disclosed invention uses a computer system to determine optimal fund allocation among a plurality of mutual funds and then allocates the funds based on the determination.

Note 3:   Steps a. through c. and e. through g. are mere data-gathering steps. They do not measure physical objects or activities. *See* Guidelines, Section IV.B.2(d)(ii).

Note 4:   Claimed invention is not limited to a practical application. Viewed as a whole, the claimed invention merely calculates an optimum account allocation for the funds in the mutual funds. It does not optimally allocate the funds--a practical application. Instead, it merely *describes* the mathematical operations used in the mutual funds system. This interpretation is based upon the finding that step h. (using . . . to provide an optimum account allocation) is not a step-plus-function limitation under 35 U.S.C. § 112 ¶ 6. The failure of the claim to positively include a data allocation step to allocate the data in the optimum way, *i.e.*, the practical application of the mathematical algorithm, is the reason why the requisite functionality (to achieve the practical application) has not been realized. *See* Guidelines, Section IV.B.2(c) and (d). The claim should be rejected under 35 U.S.C. § 101.
THE REMAINDER OF THE EXAMINATION MUST BE COMPLETED.

Claim 2

The method of claim 1, further including the step of displaying the optimum account allocation on an investor monthly account summary report to an investor or broker.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Mutual Fund

Table for Claim 2

BOX 2	Q.2a. Does disclosed invention have practical application?	YES	GoTo: Q.2b	Note 1
	Q.2b. Is disclosed invention in technological arts?	YES	GoTo: Q.6a	Note 2
BOX 6	Q.6a. Is claimed invention a computer program *per se*?	NO	GoTo: Q.6b	
	Q.6b. Is claimed invention a data structure *per se*?	NO	GoTo: Q.6c	
	Q.6c. Is claimed invention non-functional descriptive material?	NO	GoTo: Q.6d	
	Q.6d. Is claimed invention a natural phenomenon?	NO	GoTo: Q.8	
BOX 8	Q.8. Is claimed invention a series of steps to be performed on a computer?	YES	GoTo: Q.12	
BOX 9	Q.9. Is claimed invention a product for performing a process?		GoTo:	
BOX 10	Q.10. Is claimed invention a specific machine or manufacture?		GoTo:	
BOX 12	Q.12a. Does process have post-computer process activity?	NO	GoTo: Q.12b	Note 3
	Q.12b. Does process have pre-computer process activity?	NO	GoTo: Q.13a	
BOX 13	Q.13a. Does process manipulate abstract idea w/o limitation to a practical application?	NO	GoTo: Q.13b	
	Q.13b. Does process solve math problem w/o limitation to a practical application?	NO	GoTo: END	Note 4

Example: <u>Mutual Fund</u>

Table Notes for Claim 2

Note 1:   Disclosed invention optimally allocates funds among a plurality of mutual funds.

Note 2:   Disclosed invention uses a computer system to determine optimal fund allocation among a plurality of mutual funds and then allocates the funds based on the determination.

Note 3:   Displaying the summary report is not a physical act performed *outside* the computer system. *See* Guidelines, Section IV.B.2(b)(I).

Note 4:   Claimed invention is limited to the practical application of preparing and displaying the summary report to an investor or broker. A summary report has real world value and provides immediate benefit. Claimed invention is also limited to the practical application of displaying the optimal account allocation to the investor. The specification discloses three embodiments, two of which "advise" the investor of possible investment strategies. The investment strategies are based on the calculated optimal account allocation. Thus, given its broadest reasonable interpretation in light of the specification, displaying the optimal account allocation to the investor is more than the mere output of the calculation because the display must be provided in a format which "advises" the investor of possible investment strategies, *i.e.*, have real world value and immediate benefit. *See* Guidelines, Section IV.2(d)(iii).
THE REMAINDER OF THE EXAMINATION MUST BE COMPLETED.

Claim 3

The method of claim 1, further including the step of transferring funds between the mutual funds in the group according to the optimum account allocation.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Mutual Fund

Table for Claim 3

BOX 2	Q.2a. Does disclosed invention have practical application?	YES	GoTo: Q.2b	Note 1
	Q.2b. Is disclosed invention in technological arts?	YES	GoTo: Q.6a	Note 2
BOX 6	Q.6a. Is claimed invention a computer program *per se*?	NO	GoTo: Q.6b	
	Q.6b. Is claimed invention a data structure *per se*?	NO	GoTo: Q.6c	
	Q.6c. Is claimed invention non-functional descriptive material?	NO	GoTo: Q.6d	
	Q.6d. Is claimed invention a natural phenomenon?	NO	GoTo: Q.8	
BOX 8	Q.8. Is claimed invention a series of steps to be performed on a computer?	YES	GoTo: Q.12	
BOX 9	Q.9. Is claimed invention a product for performing a process?		GoTo:	
BOX 10	Q.10. Is claimed invention a specific machine or manufacture?		GoTo:	
BOX 12	Q.12a. Does process have post-computer process activity?	NO	GoTo: Q.12b	Note 3
	Q.12b. Does process have pre-computer process activity?	NO	GoTo: Q.13a	
BOX 13	Q.13a. Does process manipulate abstract idea w/o limitation to a practical application?	NO	GoTo: Q.13b	
	Q.13b. Does process solve math problem w/o limitation to a practical application?	NO	GoTo: END	Note 4

Example: Mutual Fund

Table Notes for Claim 3

Note 1:   Disclosed invention optimally allocates funds among a plurality of mutual funds.

Note 2:   Disclosed invention uses a computer system to determine optimal fund allocation among a plurality of mutual funds and then allocates the funds based on the determination.

Note 3:   Transferring the funds between the mutual funds in the group is not a physical act performed *outside* the computer system. *See* Guidelines, Section IV.B.2(b)(I).

Note 4:   Claimed invention is limited to the practical application of transferring the funds between a plurality of mutual funds in accordance with the optimal account allocation. The funds transfer is an optimal allocation of the data to impart the required functionality to achieve a practical application. THE REMAINDER OF THE EXAMINATION MUST BE COMPLETED.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Matrix

The specification discloses a method of performing matrix multiplication using a general purpose computer. No specific computer hardware or software programs are disclosed. The specification recites specific algorithms for manipulating matrices including the multiplication of two matrices together. A flow chart showing the steps involved in creating the rows and columns of the matrix and the multiplication of the terms is provided. The terms of the matrix are disclosed as representing vectors. The vectors could represent data collected from real world objects or they could be abstractions of non physical systems.

The method consists of creating two matrices having terms defined by disclosed mathematical relationships such as being non-zero, and related to a prime number or a factorial of a prime number. After creating the two matrices they are combined into one matrix by interleaving rows and columns until a prescribed mathematical relationship exists. A multiplication of the matrixes then takes place whereby an output result is determined which defines the value(s) for some unknown quantity.

The disclosure provides several examples of possible uses for the method which include simulation of space craft flight paths. The specification mentions that if this method were incorporated into the control environment of a space craft the pilot could use the method to optimize flight paths. No details of how this would be done are recited in the specification but the disclosure complies with the requirements of 35 U.S.C. § 112. The disclosure states that the invention is not limited to the space craft environment.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Matrix

Claim 1

A processing system for performing a plurality of matrix manipulations comprising:

a. means for creating a first R-row by C-column sub matrix consisting of an offset diagonal of non-zero terms, each of the R-rows having at least N non-zero terms equal in number to C, where C is a prime number and the sum of the non-zero terms of each row is less than C!;

b. means for creating a second R-row by C-column sub matrix consisting of an offset diagonal of non-zero terms, each of the R-rows having at least N non-zero terms equal in number to C, where C is a prime number and the sum of the non-zero terms of each row is less than C!;

c. means for sequentially manipulating the two sub matrices in a manner such that each matrix interleavedly exchanges a row and column until 2R-C exchanges have been made; and

d. means for matrix multiplying the manipulated matrices; and

e. means for outputting the result.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Matrix

Table for Claim 1

BOX 2	Q.2a. Does disclosed invention have practical application?	YES	GoTo: Q.2b	Note 1
	Q.2b. Is disclosed invention in technological arts?	YES	GoTo: Q.6a	Note 2
BOX 6	Q.6a. Is claimed invention a computer program *per se*?	NO	GoTo: Q.6b	
	Q.6b. Is claimed invention a data structure *per se*?	NO	GoTo: Q.6c	
	Q.6c. Is claimed invention non-functional descriptive material?	NO	GoTo: Q.6d	
	Q.6d. Is claimed invention a natural phenomenon?	NO	GoTo: Q.8	
BOX 8	Q.8. Is claimed invention a series of steps to be performed on a computer?	NO	GoTo: Q.9	
BOX 9	Q.9. Is claimed invention a product for performing a process?	YES	GoTo: Q.10	
BOX 10	Q.10. Is claimed invention a specific machine or manufacture?	?	GoTo: Q.12a	Note 3
BOX 12	Q.12a. Does process have post-computer process activity?	NO	GoTo: Q.12b	Note 4
	Q.12b. Does process have pre-computer process activity?	NO	GoTo: Q.13a	
BOX 13	Q.13a. Does process manipulate abstract idea w/o limitation to a practical application?	NO	GoTo: Q.13b	
	Q.13b. Does process solve math problem w/o limitation to a practical application?	YES	GoTo: END	Note 5

Example: <u>Matrix</u>

Table Notes for Claim 1

Note 1:   Disclosed invention aids pilots of a space craft in controlling the craft.

Note 2:   Disclosed invention uses a computer system to determine the coordinates needed for controlling a space craft.

Note 3:   Without a specification, it cannot be determined whether the claimed invention is a specific machine. The means-plus-function limitations must be read in light of the structure disclosed in the specification.

   If the claimed invention encompasses any and every machine embodiment of the underlying process, then whether the claimed invention is statutory will be decided in the steps below, *i.e.*, boxes 12 and 13 of the flowchart.

Note 4:   Element e. merely conveys the direct result of the computer operations of elements a. through d. *See* Guidelines, Section IV.B.2(d)(iii).

Note 5:   Claimed invention is not limited to a practical application. Viewed as a whole, the claimed invention merely multiplies the matrices and outputs the direct result. It does not impart any *function* to the processing system, *i.e.*, the claimed invention is not practically applied. Instead, the claimed invention merely *describes* the mathematical operations being performed in the system. *See* Guidelines, Section IV.B.2(c) and (d). The claim should be rejected under 35 U.S.C. § 101.
THE REMAINDER OF THE EXAMINATION MUST BE COMPLETED.

Claim 2

A processing system for modeling space craft thruster operation by performing a plurality of matrix manipulations of terms representing thrust vectors comprising:

a. means for creating a first R-row by C-column sub matrix of yaw vector components consisting of an offset diagonal of non-zero terms, each of the R-rows having at least N non-zero terms equal in number to C, where C is a prime number and the sum of the non-zero terms of each row is less than C!;

b. means for creating a second R-row by C-column sub matrix of pitch vector components consisting of an offset diagonal of non-zero terms, each of the R-rows having at least N non-zero terms equal in number to C, where C is a prime number and the sum of the non-zero terms of each row is less than C!;

c. means for sequentially manipulating the two sub matrices in a manner such that each matrix interleavedly exchanges a row and column until 2R-C exchanges have been made; and

d. means for matrix multiplying the manipulated matrices; and

e. means for outputting the result which simulates space craft operation in the yaw and pitch plane of flight.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Matrix

Table for Claim 2

BOX 2	Q.2a. Does disclosed invention have practical application?	YES	GoTo: Q.2b	Note 1
	Q.2b. Is disclosed invention in technological arts?	YES	GoTo: Q.6a	Note 2
BOX 6	Q.6a. Is claimed invention a computer program *per se*?	NO	GoTo: Q.6b	
	Q.6b. Is claimed invention a data structure *per se*?	NO	GoTo: Q.6c	
	Q.6c. Is claimed invention non-functional descriptive material?	NO	GoTo: Q.6d	
	Q.6d. Is claimed invention a natural phenomenon?	NO	GoTo: Q.8	
BOX 8	Q.8. Is claimed invention a series of steps to be performed on a computer?	NO	GoTo: Q.9	
BOX 9	Q.9. Is claimed invention a product for performing a process?	YES	GoTo: Q.10	
BOX 10	Q.10. Is claimed invention a specific machine or manufacture?	?	GoTo: Q.12a	Note 3
BOX 12	Q.12a. Does process have post-computer process activity?	NO	GoTo: Q.12b	Note 4
	Q.12b. Does process have pre-computer process activity?	NO	GoTo: Q.13a	
BOX 13	Q.13a. Does process manipulate abstract idea w/o limitation to a practical application?	NO	GoTo: Q.13b	
	Q.13b. Does process solve math problem w/o limitation to a practical application?	NO	GoTo: END	Note 5

Example: <u>Matrix</u>

Table Notes for Claim 2

Note 1: Disclosed invention aids pilots of a space craft in controlling the craft.

Note 2: Disclosed invention uses a computer system to determine the coordinates needed for controlling a space craft.

Note 3: Without a specification, it cannot be determined whether the claimed invention is a specific machine. The means-plus-function limitations must be read in light of the structure disclosed in the specification.

If the claimed invention encompasses any and every machine embodiment of the underlying process, then whether the claimed invention is statutory will be decided in the steps below, *i.e.*, boxes 12 and 13 of the flowchart.

Note 4: Element e. is not a physical act performed *outside* the computer system. *See* Guidelines, Section IV.B.2(b)(I).

Note 5: Claimed invention is limited to the practical application of simulating space craft operation in the yaw and pitch plane of flight. The preamble of the claim states that the "processing system" is "for modeling space craft thruster operation." Thus, the "which simulates" clause of element e. (means for outputting) is not a statement of intended use. Rather, it limits the claim to the practical application of modeling space craft thruster operation in the yaw and pitch plane of flight.
THE REMAINDER OF THE EXAMINATION MUST BE COMPLETED.

Claim 3

A processing system for modeling space craft thruster operation to aid pilots in control of the vehicle by performing a plurality of matrix manipulations of terms representing thrust vectors comprising:

a.   means for creating a first R-row by C-column sub matrix of yaw vector components consisting of an offset diagonal of non-zero terms, each of the R-rows having at least N non-zero terms equal in number to C, where C is a prime number and the sum of the non-zero terms of each row is less than C!;

b.   means for creating a second R-row by C-column sub matrix of pitch vector components consisting of an offset diagonal of non-zero terms, each of the R-rows having at least N non-zero terms equal in number to C, where C is a prime number and the sum of the non-zero terms of each row is less than C!;

c.   means for sequentially manipulating the two sub matrices in a manner such that each matrix interleavedly exchanges a row and column until 2R-C exchanges have been made; and

d.   means for matrix multiplying the manipulated matrices; and

e.   means for outputting the result on a display which provides various space craft flight paths with appropriate time requirements and fuel expenditures for each flight path selected in the yaw and pitch plane of flight,

    whereby the pilot of a space craft may select a maneuver appropriate for the mission of the space craft.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: <u>Matrix</u>

Table for Claim 3

BOX 2	Q.2a. Does disclosed invention have practical application?	YES	GoTo: Q.2b	Note 1
	Q.2b. Is disclosed invention in technological arts?	YES	GoTo: Q.6a	Note 2
BOX 6	Q.6a. Is claimed invention a computer program *per se*?	NO	GoTo: Q.6b	
	Q.6b. Is claimed invention a data structure *per se*?	NO	GoTo: Q.6c	
	Q.6c. Is claimed invention non-functional descriptive material?	NO	GoTo: Q.6d	
	Q.6d. Is claimed invention a natural phenomenon?	NO	GoTo: Q.8	
BOX 8	Q.8. Is claimed invention a series of steps to be performed on a computer?	NO	GoTo: Q.12	
BOX 9	Q.9. Is claimed invention a product for performing a process?	YES	GoTo:	
BOX 10	Q.10. Is claimed invention a specific machine or manufacture?	?	GoTo:	Note 3
BOX 12	Q.12a. Does process have post-computer process activity?	NO	GoTo: Q.12b	Note 4
	Q.12b. Does process have pre-computer process activity?	NO	GoTo: Q.13a	
BOX 13	Q.13a. Does process manipulate abstract idea w/o limitation to a practical application?	NO	GoTo: Q.13b	
	Q.13b. Does process solve math problem w/o limitation to a practical application?	NO	GoTo: END	Note 5

Example: <u>Matrix</u>

Table Notes for Claim 3

Note 1:   Disclosed invention aids pilots of a space craft in controlling
          the craft.

Note 2:   Disclosed invention uses a computer system to determine the
          coordinates needed for controlling a space craft.

Note 3:   Without a specification, it cannot be determined whether the
          claimed invention is a specific machine. The means-plus-function
          limitations must be read in light of the structure disclosed in
          the specification.

          If the claimed invention encompasses any and every machine
          embodiment of the underlying process, then whether the claimed
          invention is statutory will be decided in the steps below, *i.e.*,
          boxes 12 and 13 of the flowchart.

Note 4:   Element e. is not a physical act performed *outside* the computer
          system. *See* Guidelines, Section IV.B.2(b)(I).

Note 5:   Claimed invention is limited to the practical application of
          displaying various space craft flight paths for pilot maneuver
          selection. Knowledge of flight paths and fuel expenditures via
          the display have real world value and provide immediate benefit.
             See Guidelines, Section IV.2(d)(iii).
          THE REMAINDER OF THE EXAMINATION MUST BE COMPLETED.

The specification discloses a method of training a neural network node using a general purpose computer. The general purpose computer contains a CPU and a math coprocessor. The computer has a standard operating system and configuration for memory having a number of interconnected memory cells each working together. The method consists of a sequence of functions being carried out in a specific order to achieve the functionality of training this specialized network to perform a wide range of varied functions. The method of training a neural network node contains a number of basic steps. The first is a step of providing an initial set of target points in the model space. After the set of target points is set then an estimate of the probability density function (PDF) on the model space at each node in the model space is generated. After the PDF is generated for each node then a second set of target points in said model space is determined. The second set of target points are individually or combinatorially evaluated using the probability density function PDF.

For optimum training within a system a threshold value must be selected for the desired functionality. The threshold value is determined to be less than PDF(i) , where i is the ith target point for each of the second set of target points. Using this threshold value, a first training set of target points for the model space is computed using the N.N.S.(Neural Network Standard determined by National Institute for Standards and Technology in 1995) where the input value is selected and the output value is the PDF(Input value) where PDF(Input value) less than the threshold value. Using this threshold value, a second training set of target points for the model space is computed using the N.N.S.(Neural Network Standard determined by National Institute for Standards and Technology in 1995) where the input value is selected and the output value is the PDF(Input value) where PDF(Input value) greater than said threshold value. Once the first and second set of training sets are determined to meet the criteria set forth above, these sets now contain the desired characteristics to appropriately train the neural network for the desired functionality.

There are a wide range of functions which may be carried out by the ultimate end user of the neural network. The function will dictate the criteria upon which the network specifications must be established. The process will vary upon the selection of the criteria. The disclosed methodology is the basic framework from which most functionalities may be established from an appropriate training set.

The neural networks to be trained may be either based in a hardware based system which is adapted or it may similarly be based upon a general purpose computer to carry out the desired functionality as a neural network. The training may be done either by a technician, by automated system or by a programed system in the general purpose computer.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Neural Network

Claim 1

A computerized method of training a neural network node comprising the steps of:

a.   providing an initial set of target points;

b.   providing a second set of target points;

c.   determining a threshold value that is less than a predetermined value;

d.   using the threshold value, providing a first training set of target points;

e.   using the threshold value, providing a second training set of target points; and

f.   using the first and second sets of training target points to train the neural network.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Neural Network

Table for Claim 1

BOX 2	Q.2a. Does disclosed invention have practical application?	YES	GoTo: Q.2b	Note 1
	Q.2b. Is disclosed invention in technological arts?	YES	GoTo: Q.6a	Note 2
BOX 6	Q.6a. Is claimed invention a computer program *per se*?	NO	GoTo: Q.6b	
	Q.6b. Is claimed invention a data structure *per se*?	NO	GoTo: Q.6c	
	Q.6c. Is claimed invention non-functional descriptive material?	NO	GoTo: Q.6d	
	Q.6d. Is claimed invention a natural phenomenon?	NO	GoTo: Q.8	
BOX 8	Q.8. Is claimed invention a series of steps to be performed on a computer?	YES	GoTo: Q.12	
BOX 9	Q.9. Is claimed invention a product for performing a process?		GoTo:	
BOX 10	Q.10. Is claimed invention a specific machine or manufacture?		GoTo:	
BOX 12	Q.12a. Does process have post-computer process activity?	NO	GoTo: Q.12b	Note 3
	Q.12b. Does process have pre-computer process activity?	NO	GoTo: Q.13a	Note 4
BOX 13	Q.13a. Does process manipulate abstract idea w/o limitation to a practical application?	NO	GoTo: Q.13b	Note 5
	Q.13b. Does process solve math problem w/o limitation to a practical application?	NO	GoTo: END	

Table Notes for Claim 1

Note 1:   Disclosed invention trains a neural network.

Note 2:   Disclosed invention uses a computer system to train a neural
            network.

Note 3:   Step f. is not a physical act performed *outside* the computer
            system. *See* Guidelines, Section IV.B.2(b)(I).

Note 4:   Steps a. and b. are mere data-gathering steps for the computer
            operations of steps c. through e. They do not measure physical
            objects or activities. *See* Guidelines, Section IV.B.2(d)(ii).

Note 5:   Claimed invention is limited to the practical application of
            training the neural network. The step of training the neural
            network is a functional step which covers reconfiguration of the
            neural network to produce a practical effect, *i.e.*, to permit the
            network to perform a desired set of functions.
            THE REMAINDER OF THE EXAMINATION MUST BE COMPLETED.

Claim 2

A computerized method of training a neural network node comprising the steps of:

a.   providing an initial set of target points;

b.   providing a second set of target points;

c.   determining a threshold value that is less than a predetermined value;

d.   using the threshold value, providing a first set of training target points;

e.   using the threshold value, providing a second set of training target points; and

f.   using the first and second sets of training target points to develop a set of training sets for training the neural network.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Neural Network

Table for Claim 2

BOX 2	Q.2a. Does disclosed invention have practical application?	YES	GoTo: Q.2b	Note 1
	Q.2b. Is disclosed invention in technological arts?	YES	GoTo: Q.6a	Note 2
BOX 6	Q.6a. Is claimed invention a computer program *per se*?	NO	GoTo: Q.6b	
	Q.6b. Is claimed invention a data structure *per se*?	NO	GoTo: Q.6c	
	Q.6c. Is claimed invention non-functional descriptive material?	NO	GoTo: Q.6d	
	Q.6d. Is claimed invention a natural phenomenon?	NO	GoTo: Q.8	
BOX 8	Q.8. Is claimed invention a series of steps to be performed on a computer?	YES	GoTo: Q.12	
BOX 9	Q.9. Is claimed invention a product for performing a process?		GoTo:	
BOX 10	Q.10. Is claimed invention a specific machine or manufacture?		GoTo:	
BOX 12	Q.12a. Does process have post-computer process activity?	NO	GoTo: Q.12b	
	Q.12b. Does process have pre-computer process activity?	NO	GoTo: Q.13a	Note 3
BOX 13	Q.13a. Does process manipulate abstract idea w/o limitation to a practical application?	NO	GoTo: Q.13b	Note 4
	Q.13b. Does process solve math problem w/o limitation to a practical application?	YES	GoTo: END	

Example: <u>Neural Network</u>

Table Notes for Claim 2

Note 1:   Disclosed invention trains a neural network.

Note 2:   Disclosed invention uses a computer system to train a neural
          network.

Note 3:   Steps a. and b. are mere data-gathering steps for the computer
          operations of steps c. through e. They do not measure physical
          objects or activities. *See* Guidelines, Section IV.B.2(d)(ii).

Note 4:   Claimed invention is not limited to a practical application.
          Viewed as a whole, the claimed invention is the abstract idea of
          using a computer system to mathematically develop training sets
          for training neural networks. The "for training the neural
          network" clause of step f. (using . . . to develop) is a
          statement of intended use. Thus, step f. does not train the
          network--a practical application. *The claim is directed to
          nothing more than converting one set of numbers to another set of
          numbers with no practical effect.* *See* <u>Gottschalk v. Benson</u>, 409
          U.S. 63, 71-72 (1972). *See also* Guidelines, Section IV.B.2(c)
          and (d). The claim should be rejected under 35 U.S.C. § 101.
          THE REMAINDER OF THE EXAMINATION MUST BE COMPLETED.

Claim 3

A method of determining the state of a neural network comprising the steps of:

a.   providing an initial set of target points;

b.   providing a second set of target points;

c.   modifying the initial and second set of target points;

d.   providing a first training set of target points to the neural network;

e.   providing a second training set of target points to the neural network; and

f.   using the results of the steps of providing first and second training sets of target points to determine the state of the neural network.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Neural Network

Table for Claim 3

BOX 2	Q.2a. Does disclosed invention have practical application?	YES	GoTo: Q.2b	Note 1
	Q.2b. Is disclosed invention in technological arts?	YES	GoTo: Q.6a	Note 2
BOX 6	Q.6a. Is claimed invention a computer program *per se*?	NO	GoTo: Q.6b	
	Q.6b. Is claimed invention a data structure *per se*?	NO	GoTo: Q.6c	
	Q.6c. Is claimed invention non-functional descriptive material?	NO	GoTo: Q.6d	
	Q.6d. Is claimed invention a natural phenomenon?	NO	GoTo: Q.8	
BOX 8	Q.8. Is claimed invention a series of steps to be performed on a computer?	YES	GoTo: Q.12	
BOX 9	Q.9. Is claimed invention a product for performing a process?		GoTo:	
BOX 10	Q.10. Is claimed invention a specific machine or manufacture?		GoTo:	
BOX 12	Q.12a. Does process have post-computer process activity?	NO	GoTo: Q.12b	
	Q.12b. Does process have pre-computer process activity?	NO	GoTo: Q.13a	Note 3
BOX 13	Q.13a. Does process manipulate abstract idea w/o limitation to a practical application?	NO	GoTo: Q.13b	Note 4
	Q.13b. Does process solve math problem w/o limitation to a practical application?	YES	GoTo: END	

Example: <u>Neural Network</u>

Table Notes for Claim 3

Note 1:   Disclosed invention trains a neural network.

Note 2:   Disclosed invention uses a computer system to train a neural
           network.

Note 3:   Steps a. and b. are mere data-gathering steps for the computer
           operations of steps c. through e. They do not measure physical
           objects or activities. *See* Guidelines, Section IV.B.2(d)(ii).

Note 4:   Claimed invention is not limited to a practical
           application. Step e. (determining the state of the
           neural network) does nothing more than determine the
           weights assigned to the network nodes at any given
           moment without providing any desired functionality,
           i.e., without any practical application. Unless the
           neural network does something practical, merely
           "determining" its state is akin to watching a "Rube
           Goldberg" art work. Reading or recording the direct
           output of the weights assigned is not a practical
           application. *See* <u>In re Walter</u>, 618 F.2d 758, 768-70,
           205 USPQ 397, 408-10 (CCPA 1980). Rather, the claim
           must recite the *function* the neural network is trained
           to perform. The claim should be rejected under
           35 U.S.C. § 101.
           THE REMAINDER OF THE EXAMINATION MUST BE COMPLETED.

Example: Triple Precision Arithmetic

The specification discloses a method of performing triple precision arithmetic in a general purpose computer. The general purpose computer contains a CPU and a math coprocessor. The computer has a standard operating system and configuration for memory having a number of interconnected memory cells each working together. The method is a series of steps being performed on the general purpose computer to perform the arithmetic addition of at least two triple precision values into a resultant triple quantity. Prior art methods have only consisted of double precision computations. Many of the complex chemical analysis computations which previously were performed on supercomputers, may now be carried out by desktop computer with the addition of a dedicated subsystem for performing simultaneous computations while the computer carries out other data manipulations. An embodiment of such an implementation is set forth in the detailed description. The dedicated processing of the mathematical computations along with the added precision of the triple precision mathematics allow the desktop computer to be a stand alone design and perform as an analysis workstation for a wide array of applications in mathematics and the sciences which is unrivaled by systems on the market today.

The method is composed of a series of steps which must be performed in a specified order to achieve the triple precision computation. The first step is converting a first triple precision quantity into a first pair of overlapping double precision quantities and storing two copies of the first overlapping double precision quantities into memory cells. The conversion is performed by a known method of dividing the numerical representation of the value into two equal number of bytes which are each equal to the maximum word size for a double precision value. The second step is converting said second triple precision quantity into a second pair of overlapping double precision quantities and storing two copies of the second overlapping double precision quantities into memory cells. The conversion is performed in the same manner as recited in the first step above. The third step of the method generates a first intermediate value by performing at least one double precision arithmetic operation on a first copy of each said first and second double precision quantities. Depending upon the level of accuracy desired in the computation, a number of computations may be made and a statistical mean value may be used in the determination of the actual value of the result. The fourth step is generating a second intermediate value by performing the inverse operation of said at least one double precision arithmetic operation on said second copy of each said first and second double precision quantities. Again, depending upon the level of accuracy desired in the computation, a number of computations may be made and a statistical mean value may be used in the determination of the actual value of the result.

The statistical evaluation of each of the intermediate values may be made individually to generate the intermediate values which are then combined combinatorially to generate the result of the triple precision

arithmetic operation. Alternatively, the individual intermediate values may by combinatorially combined to generate the triple precision arithmetic value. The statistical manipulation of the values would have been within the level of skill of those in the art and various computer programs could be generated to implement the functions set forth in the high level flow diagrams attached in Appendix 1to the specification.   Figures 1A and 1B show one of the preferred hardware embodiments for performing the same arithmetic operations as described in the flow diagrams. Due to the limitations on clock speed, the hardware embodiment has been the more efficient but more costly in implementation of the method on a wide range of computers. The software embodiment has proven to be the more flexible and more implementable embodiment of the invention than the hardware embodiment where the speed is not critical. As higher clock speeds become available the hardware and software embodiments will function at comparable speeds and efficiency.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Triple Precision Arithmetic

Claim 1

A method of performing triple precision arithmetic in a computer having a plurality of memory cells comprising the steps of:

a. converting a first triple precision quantity into a first pair of overlapping double precision quantities and storing two copies of the first overlapping double precision quantities into memory cells;

b. converting a second triple precision quantity into a second pair of overlapping double precision quantities and storing two copies of the second overlapping double precision quantities into memory cells;

c. generating a first value by performing at least one double precision arithmetic operation on the first copy of each of the first and second double precision quantities;

d. generating a second value by performing the inverse of the at least one double precision arithmetic operation on the second copy of each of the first and second double precision quantities; and

e. combinatorially combining the first and second values to generate a triple precision arithmetic value.

Table for Claim 1

BOX 2	Q.2a. Does disclosed invention have practical application?	YES	GoTo: Q.2b	Note 1
	Q.2b. Is disclosed invention in technological arts?	YES	GoTo: Q.6a	Note 2
BOX 6	Q.6a. Is claimed invention a computer program *per se*?	NO	GoTo: Q.6b	
	Q.6b. Is claimed invention a data structure *per se*?	NO	GoTo: Q.6c	
	Q.6c. Is claimed invention non-functional descriptive material?	NO	GoTo: Q.6d	
	Q.6d. Is claimed invention a natural phenomenon?	NO	GoTo: Q.8	
BOX 8	Q.8. Is claimed invention a series of steps to be performed on a computer?	YES	GoTo: Q.12	
BOX 9	Q.9. Is claimed invention a product for performing a process?		GoTo:	
BOX 10	Q.10. Is claimed invention a specific machine or manufacture?		GoTo:	
BOX 12	Q.12a. Does process have post-computer process activity?	NO	GoTo: Q.12b	
	Q.12b. Does process have pre-computer process activity?	NO	GoTo: Q.13a	
BOX 13	Q.13a. Does process manipulate abstract idea w/o limitation to a practical application?	NO	GoTo: Q.13b	
	Q.13b. Does process solve math problem w/o limitation to a practical application?	YES	GoTo: END	Note 3

Table Notes for Claim 1

Note 1:   Disclosed invention performs complex chemical analysis employing triple precision arithmetic computations on a general purpose computer.

Note 2:   Disclosed invention uses a computer system to perform triple precision arithmetic.

Note 3:   Claimed invention is not limited to a practical application. Viewed as a whole, the claimed invention merely performs triple precision arithmetic. It does not impart any *function* to the computer system, *i.e.*, the claim taken as a whole is a mathematical algorithm which is not practically applied. Instead, the claimed invention merely *describes* the mathematical operations being used in the computer system. *See* Guidelines, Section IV.B.2(c) and (d). The claim should be rejected under 35 U.S.C. § 101.
THE REMAINDER OF THE EXAMINATION MUST BE COMPLETED.

Claim 2

A triple precision arithmetic logic unit in a computer having a plurality of memory cells comprising:

a.   a first D to D converter which converts a first triple precision quantity into a first pair of overlapping double precision quantities and stores two copies of the first overlapping double precision quantities into the memory cells;

b.   a second D to D converter which converts a second triple precision quantity into a second pair of overlapping double precision quantities and stores two copies of the second overlapping double precision quantities into the memory cells;

c.   a double precision adder which generates a first value by performing at least one double precision addition operation on the first copy of each of the first and second double precision quantities;

d.   means for generating a second value by performing the inverse of the at least one double precision addition operation on the second copy of each of the first and second double precision quantities; and

e.   means for combinatorially combining the first and second values to generate a triple precision arithmetic value.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Triple Precision Arithmetic

Table for Claim 2

BOX 2	Q.2a. Does disclosed invention have practical application?	YES	GoTo: Q.2b	Note 1
	Q.2b. Is disclosed invention in technological arts?	YES	GoTo: Q.6a	Note 2
BOX 6	Q.6a. Is claimed invention a computer program *per se*?	NO	GoTo: Q.6b	
	Q.6b. Is claimed invention a data structure *per se*?	NO	GoTo: Q.6c	
	Q.6c. Is claimed invention non-functional descriptive material?	NO	GoTo: Q.6d	
	Q.6d. Is claimed invention a natural phenomenon?	NO	GoTo: Q.8	
BOX 8	Q.8. Is claimed invention a series of steps to be performed on a computer?	NO	GoTo: Q.9	
BOX 9	Q.9. Is claimed invention a product for performing a process?	YES	GoTo: Q.10	
BOX 10	Q.10. Is claimed invention a specific machine or manufacture?	?	GoTo: Q.12a	Note 3
BOX 12	Q.12a. Does process have post-computer process activity?	NO	GoTo: Q.12b	
	Q.12b. Does process have pre-computer process activity?	NO	GoTo: Q.13a	
BOX 13	Q.13a. Does process manipulate abstract idea w/o limitation to a practical application?	NO	GoTo: Q.13b	
	Q.13b. Does process solve math problem w/o limitation to a practical application?	YES	GoTo: END	Note 4

Example: <u>Triple Precision Arithmetic</u>

Table Notes for Claim 2

Note 1: Disclosed invention performs complex chemical analysis employing triple precision arithmetic computations on a general purpose computer.

Note 2: Disclosed invention uses a computer system to perform triple precision arithmetic.

Note 3: The means-plus-function limitations must be read in light of the structure disclosed in the specification. The mere fact that two D-to-D converters and one adder are recited in the claim does not *necessarily* limit the claim to a specific machine or article of manufacture. D-to-D converters and adders may be implemented in either hardware, software or both.

The specification includes flowcharts, which describe the functionality of the D-to-D converters and the adder. Thus, giving the claim the broadest reasonable interpretation in light of the specification, the claim covers both hardware and software implementation of the recited functionality, *i.e.*, the claim is so broad that it would wholly pre-empt the use of any and every manufacture for causing the computer to perform the mathematical calculations recited therein. Accordingly, it is determined that the claim does not define a specific machine or article of manufacture. Applicant could submit arguments challenging this interpretation, showing particularly how the claim, as a whole, is limited to a specific machine or article of manufacture. *See* Guidelines, Section IV.B.2(a)(I).

Because the claimed invention encompasses any and every machine or article of manufacture for causing the computer to perform the underlying process, then whether the claimed invention is statutory will be decided in the steps below, *i.e.*, boxes 12 and 13 of the flowchart.

Note 4: Claimed invention is not limited to a practical application. Viewed as a whole, the claimed invention merely performs triple precision arithmetic. It does not impart any *function* to the computer system, *i.e.*, the claim is not practically applied. Instead, the claimed invention merely *describes* the mathematical operations being used in the computer system. This analysis is based upon the determination in Note 3 above that the claim is not limited to a specific machine or article of manufacture. *See* Guidelines, Section IV.B.2(c) and (d). The claim should be rejected under 35 U.S.C. § 101.

THE REMAINDER OF THE EXAMINATION MUST BE COMPLETED.

Claim 3

A triple precision arithmetic logic unit as claimed in claim 2, wherein the logic unit is embedded in a single monolithic PAL.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Triple Precision Arithmetic

Table for Claim 3

BOX 2	Q.2a. Does disclosed invention have practical application?	YES	GoTo: Q.2b	Note 1
	Q.2b. Is disclosed invention in technological arts?	YES	GoTo: Q.6a	Note 2
BOX 6	Q.6a. Is claimed invention a computer program *per se*?	NO	GoTo: Q.6b	
	Q.6b. Is claimed invention a data structure *per se*?	NO	GoTo: Q.6c	
	Q.6c. Is claimed invention non-functional descriptive material?	NO	GoTo: Q.6d	
	Q.6d. Is claimed invention a natural phenomenon?	NO	GoTo: Q.8	
BOX 8	Q.8. Is claimed invention a series of steps to be performed on a computer?	NO	GoTo: Q.9	
BOX 9	Q.9. Is claimed invention a product for performing a process?	YES	GoTo: Q.10	
BOX 10	Q.10. Is claimed invention a specific machine or manufacture?	?	GoTo: Q.12a	Note 3
BOX 12	Q.12a. Does process have post-computer process activity?	NO	GoTo: Q.12b	
	Q.12b. Does process have pre-computer process activity?	NO	GoTo: Q.13a	
BOX 13	Q.13a. Does process manipulate abstract idea w/o limitation to a practical application?	NO	GoTo: Q.13b	
	Q.13b. Does process solve math problem w/o limitation to a practical application?	YES	GoTo: END	Note 4

Example: Triple Precision Arithmetic

Table Notes for Claim 3

Note 1:   Disclosed invention performs complex chemical analysis employing
           triple precision arithmetic computations on a general purpose
           computer.

Note 2:   Disclosed invention uses a computer system to perform triple
           precision arithmetic.

Note 3:   The analysis of the claim language is the same as for claim 2
           above, further requiring consideration of the recitation of the
           limitation "embedded in a single monolithic PAL." The
           terminology "embedded" must be analyzed in light of the
           specification. "Embedded" could define merely placing the
           claimed triple arithmetic logic unit on the same chip substrate
           as the programmed array of logic,(PAL), *i.e.*, the PAL is actually
           a separate and distinct structure. If the claimed "unit" is
           merely mounted adjacent or in close proximity to the PAL, the
           claimed invention as a whole, given its broadest reasonable
           interpretation, is not a specific manufacture. The mere
           recitation of a hardware element itself is insufficient to define
           a specific manufacture. On the other hand, "embedded" could
           define that the claimed logic unit is actually embodied as a PAL.
            If the claimed apparatus is embodied in a programmed array of
           logic elements, that claimed invention as a whole would consist
           of interrelated logic circuits and means clearly constituting a
           specific manufacture. *See* In re Iwahashi, 888 F.2d 1370, 1374-
           75, 12 USPQ2d 1908, 1911-12 (Fed. Cir. 1989) (construing claim
           containing ROM limitation under 35 U.S.C. § 112 ¶ 6 to determine
           whether claim recited specific manufacture). Absent a clear
           definition for this terminology, the claim would be given its
           broadest reasonable interpretation. Thus, the claim, as a whole,
           is not limited to a specific manufacture. Again, applicant could
           submit arguments challenging this interpretation, showing
           particularly how the claim as a whole is limited to a specific
           manufacture. *See* Guidelines, Section IV.B.2(a)(I).

           If the claimed invention encompasses any and every manufacture
           for causing the computer to perform the underlying process, then
           whether the claimed invention is statutory will be determined in
           the analysis steps below, *i.e.*, boxes 12 and 13 of the flowchart.

Note 4:   Claimed invention is not limited to a practical application.
           Viewed as a whole, the claimed invention merely performs triple
           precision arithmetic. It does not impart any *function* to the
           computer system, *i.e.*, the claim taken as a whole is drawn to a
           mathematical algorithm which is not practically applied.
           Instead, the claimed invention merely *describes* the mathematical

operations being used in the computer system. This result is based upon the analysis set forth in Note 3 above. *See* Guidelines, Section IV.B.2(c) and (d). The claim should be rejected under 35 U.S.C. 101.
THE REMAINDER OF THE EXAMINATION MUST BE COMPLETED.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Market Securities

The invention is a method of determining whether to extend real estate services to a potential customer. The method is performed utilizing a general purpose computer system configured for that purpose, *i.e.*, specific inputs for receiving data, ALUs, outputs, etc. for implementing the method.

The method includes a series of steps to be performed on a computer system for providing real time indications of whether to extend real estate services such as insurance, second mortgages, lines of credit, etc. based upon the potential customer's ownership of specified securities. The computer system receives data relating to the value of the specified securities, market variations/changes with respect to those securities, and a potential range of acceptable future values for those securities. Employing this data, the computer system determines the probable value of those securities at a time in the future to assess the risk of extending a home mortgage service or other real estate related service to the potential customer who is the owner of the securities. The assessment is made by comparing a determined level of risk for extending the service with a threshold value for that risk. The outcome of the evaluation and the resulting decision on the real estate related service are conveyed to the potential customer.

The disclosed invention includes a preferred embodiment in specific hardware/software but also includes high level flow charts that could be used to implement the method in "any and every" product. The notification to the potential customer is disclosed as including the preparation of a "form letter" of acceptance/rejection; but further includes a general statement that "any other appropriate means" could be used. The "form letter" can be prepared by the computer system-printer output or prepared by a person.

Claim 1

In a system for real time determination of a market indicator for securities which mature within a set time, the system comprising:

a. means for receiving data relating to investor investment in specific securities;

b. means for receiving data relating to market transactions of the securities;

c. means for evaluating the received market transaction data to determine which of the received market transaction data is within a preset range of values;

d. means for selecting the received market transaction data determined to be within the preset range; and

e. means for evaluating the data relating to investor investment in specified securities and the selected data to determine the probable value of the securities for a range of time in the future;

the method of determining the level of risk in extending a real estate service comprising the steps of:

f. evaluating the investor investment in specified securities data and the probable value of the securities to determine the level of risk for a home mortgage service; and

g. using the level of risk determined for the home mortgage service to determine a level of risk for a related real estate service.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Market Securities

Table for Claim 1

BOX 2	Q.2a. Does disclosed invention have practical application?	YES	GoTo: Q.2b	Note 1
	Q.2b. Is disclosed invention in technological arts?	YES	GoTo: Q.6a	Note 2
BOX 6	Q.6a. Is claimed invention a computer program *per se*?	NO	GoTo: Q.6b	
	Q.6b. Is claimed invention a data structure *per se*?	NO	GoTo: Q.6c	
	Q.6c. Is claimed invention non-functional descriptive material?	NO	GoTo: Q.6d	
	Q.6d. Is claimed invention a natural phenomenon?	NO	GoTo: Q.8	
BOX 8	Q.8. Is claimed invention a series of steps to be performed on a computer?	YES	GoTo: Q.12	Note 3
BOX 9	Q.9. Is claimed invention a product for performing a process?		GoTo:	
BOX 10	Q.10. Is claimed invention a specific machine or manufacture?		GoTo:	
BOX 12	Q.12a. Does process have post-computer process activity?	NO	GoTo: Q.12b	
	Q.12b. Does process have pre-computer process activity?	NO	GoTo: Q.13a	
BOX 13	Q.13a. Does process manipulate abstract idea w/o limitation to a practical application?	NO	GoTo: Q.13b	Note 4
	Q.13b. Does process solve math problem w/o limitation to a practical application?	YES	GoTo: END	

Table Notes for Claim 1

Note 1:   Disclosed invention determines, considering the risk levels,
           whether to extend real estate services.

Note 2:   Disclosed invention uses a computer system to determine risk
           levels in extending real estate services.

Note 3:   Disclosed invention is the method being performed on
           the system described in the claim.

Note 4:   Claimed invention is not limited to a practical application.
           Viewed as a whole, the claimed invention is the abstract idea of
           using a computer system to mathematically determine risk levels
           for extending real estate services. It does not extend real
           estate services--a practical application. The claimed invention
           merely performs calculations and outputs the direct result. *See,*
           e.g., In re Schrader, 22 F.3d 290, 30 USPQ2d 1455 (Fed. Cir.
           1994). *See also* Guidelines, Section IV.B.2(c) and (d). The
           claim should be rejected under 35 U.S.C. § 101.
           THE REMAINDER OF THE EXAMINATION MUST BE COMPLETED.

Claim 2

In a system for real time determination of a market indicator for
securities which mature within a set time, the system comprising:

a.   means for receiving data relating to investor investment in specified
      securities;

b.   means for receiving data relating to market transactions of the
      securities;

c.   means for evaluating the received market transaction data to determine
      which of the received market transaction data is within a preset
      range of values;

d.   means for selecting the received market transaction data determined to
      be within the preset range; and

e.   means for evaluating the data relating to investor investment in
      specified securities and the selected data to determine the probable
      value of the securities for a range of time in the future;

the method of determining whether to extend a real estate service
comprising the steps of:

f.   evaluating the investor investment in specified securities data and
      the probable value of the securities to determine the level of risk
      for a home mortgage service;

g.   using the level of risk determined for the home mortgage service to
      determine a level of risk for a related real estate service;

h.   comparing the level of risk for the related real estate service with a
      threshold value; and

i.   determining whether to extend the related real estate service based
      upon the comparison with the threshold value.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Market Securities

Table for Claim 2

BOX 2	Q.2a. Does disclosed invention have practical application?	YES	GoTo: Q.2b	Note 1
	Q.2b. Is disclosed invention in technological arts?	YES	GoTo: Q.6a	Note 2
BOX 6	Q.6a. Is claimed invention a computer program *per se*?	NO	GoTo: Q.6b	
	Q.6b. Is claimed invention a data structure *per se*?	NO	GoTo: Q.6c	
	Q.6c. Is claimed invention non-functional descriptive material?	NO	GoTo: Q.6d	
	Q.6d. Is claimed invention a natural phenomenon?	NO	GoTo: Q.8	
BOX 8	Q.8. Is claimed invention a series of steps to be performed on a computer?	YES	GoTo: Q.12	Note 3
BOX 9	Q.9. Is claimed invention a product for performing a process?		GoTo:	
BOX 10	Q.10. Is claimed invention a specific machine or manufacture?		GoTo:	
BOX 12	Q.12a. Does process have post-computer process activity?	NO	GoTo: Q.12b	
	Q.12b. Does process have pre-computer process activity?	NO	GoTo: Q.13a	
BOX 13	Q.13a. Does process manipulate abstract idea w/o limitation to a practical application?	NO	GoTo: Q.13b	Note 4
	Q.13b. Does process solve math problem w/o limitation to a practical application?	YES	GoTo: END	

Table Notes for Claim 2

Note 1:   Disclosed invention determines, considering the risk levels, whether to extend real estate services.

Note 2:   Disclosed invention uses a computer system to determine risk levels in extending real estate services.

Note 3:   Disclosed invention is the method being performed on the system described in the claim.

Note 4:   Claimed invention is *still* not limited to a practical application. Viewed as a whole, the claimed invention is the abstract idea of using a computer system to mathematically determine whether to extend real estate services. It does not extend real estate services based on the determination--a practical application. Step i. ("determining whether to extend . . .") must be given its broadest reasonable interpretation in light of the specification. Unless "determining" is something other than merely a mathematical operation, for example, running a computer simulation, then the claimed invention is no more than an abstract idea. *See* Guidelines, Section IV.B.2(c) and (d). The claim should be rejected under 35 U.S.C. § 101. THE REMAINDER OF THE EXAMINATION MUST BE COMPLETED.

Claim 3

In the method of claim 2, the further step of notifying a potential buyer of the decision on whether to extend the related real estate service.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Market Securities

Table for Claim 3

BOX 2	Q.2a. Does disclosed invention have practical application?	YES	GoTo: Q.2b	Note 1
	Q.2b. Is disclosed invention in technological arts?	YES	GoTo: Q.6a	Note 2
BOX 6	Q.6a. Is claimed invention a computer program *per se*?	NO	GoTo: Q.6b	
	Q.6b. Is claimed invention a data structure *per se*?	NO	GoTo: Q.6c	
	Q.6c. Is claimed invention non-functional descriptive material?	NO	GoTo: Q.6d	
	Q.6d. Is claimed invention a natural phenomenon?	NO	GoTo: Q.8	
BOX 8	Q.8. Is claimed invention a series of steps to be performed on a computer?	YES	GoTo: Q.12	Note 3
BOX 9	Q.9. Is claimed invention a product for performing a process?		GoTo:	
BOX 10	Q.10. Is claimed invention a specific machine or manufacture?		GoTo:	
BOX 12	Q.12a. Does process have post-computer process activity?	NO	GoTo: Q.12b	Note 4
	Q.12b. Does process have pre-computer process activity?	NO	GoTo: Q.13a	
BOX 13	Q.13a. Does process manipulate abstract idea w/o limitation to a practical application?	NO	GoTo: Q.13b	
	Q.13b. Does process solve math problem w/o limitation to a practical application?	YES	GoTo: END	Note 5

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Market Securities

Table Notes for Claim 3

Note 1:   Disclosed invention determines, considering the risk levels, whether to extend real estate services.

Note 2:   Disclosed invention uses a computer system to determine risk levels in extending real estate services.

Note 3:   Disclosed invention is the method being performed on the system described in the claim.

Note 4:   Without the complete specification, it is unclear whether the step of "notifying" might include post-computer processing activity. *See* Guidelines, Section IV.B.2(b)(I).

Note 5:   Claimed invention is not limited to a practical application. The specification discloses that "notification" includes the preparation of an acceptance or rejection "form" letter *or "*other appropriate means" by either the computer or a person. Thus, given its broadest reasonable interpretation, the step of "notifying a potential buyer of the decision" is not limited to a "form" letter--a practical application. Instead, it includes "other appropriate means" including merely outputting the direct result of the calculation. *See* In re Abele, 684 F.2d 902, 909, 214 USPQ 682, 688 (CCPA 1982) (display of result as shade of gray does not provide "greater or better information" than mere display of number); In re De Castelet, 562 F.2d 1236, 195 USPQ 439 (CCPA 1977) ("final transmitting step constitutes nothing more than reading out the result of the calculations"). *See also* Guidelines, Section IV.2(d)(iii). The claim should be rejected under 35 U.S.C. § 101.
THE REMAINDER OF THE EXAMINATION MUST BE COMPLETED.