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Basic College Mathematics

Updates - Version 4.2

Hawkes Learning Systems is pleased to introduce version 4.2 of Basic College Mathematics. The new features, enhancements, & content changes are listed below by section number.

Enhancements

- Chapters 1-7: The instruct screens for all sections are new and/or improved. The design, layout, and content have all been updated and improved to correspond with the 8th edition of the textbook. Instructions and explanations have been improved for better understanding and clarification. Illustrations have been added or updated for visual representation. Many new examples have been added throughout all the sections. Multiple step examples contain side notes that explain each step. Definitions have been reworded for clarity as necessary.
- Sections 1.2-1.8: Increased support for the entry of commas in answer boxes.
- Section 1.2: Improved step-by-step screens for 16 questions.
- Section 1.3: Improved solution screens for 21 questions.
- Section 1.5: Improved step-by-step screens for 3 questions. Added a print button to instruct screen 5 that allows the user to print out a blank multiplication table.
- Section 1.8: New and improved hint screens for 5 questions. Improved the solution and explain error screens for 1 problem question.
- Section 2.1: Updated the problem question generation for problem question 14 to ensure that the given number is always less than 400.
- Section 2.2: Improved the step-by-step screens for 2 questions.
- Section 2.3: Improved the layout and the wording for 3 questions.
- Section 2.5: Added more answer boxes to all questions.
- Section 3.2: Removed references to GCF and improved explain error, step-by-step and solution screens for 4 questions.

- Section 3.3: Updated the problem question generation for 1 problem question to ensure that the given fraction is always in lowest terms. Improved solution screens for 2 questions.
- Section 4.1: Updated the step-by-step screens for 1 problem question.

New Questions

- Section 3.3: Added a problem question which will ensure that both given numbers are always fractions in lowest terms.
- Section 4.1: Added a problem question where the given fraction is always in simplest form, and the whole number, numerator and denominator are smaller numbers. Added a problem question where the given fraction is not in simplest form, and the whole number, numerator and denominator are smaller numbers.
- Section 5.5: Added 8 questions where the expression will always be a decimal number.
- Section 6.3: Added 4 questions that involve solving proportions.

Updates - Version 4.2

Hawkes Learning Systems is pleased to introduce version 4.2 of Prealgebra. The new features, enhancements, & content changes are listed below by section number.

Enhancements

- Section 1.2: Changed instruct screen 7 so the measurements correspond better to the image.
- Sections 1.2-1.7: Increased support for the entry of commas in answer boxes.
- Section 1.4: Added an example illustration to instruct screen 10. For 1 problem question, labeled both sides of the square, and improved the Step By Step screens for easier understanding and better comprehension.
- Section 1.5: New and improved instruct screens which provide updated instruction, examples, definitions and illustrations.
- Section 1.6: Added a note to instruct screen 10 to remind and clarify the proper use of the order of operations.
- Section 2.1: New and improved instruct screens which provide updated instruction, examples, definitions and illustrations.
- Section 2.5: Updated 3 questions so that the correct answer no longer uses the multiplication cross (\times) and also increased support for alternate forms of the correct answer.
- Section 2.7: New and improved instruct screens which provide updated instruction, examples, definitions and illustrations.
- Section 5.6: Improved the solution screens for problem question 6.
- Section 6.6: Improved the solution screens for 1 problem question.
- Section 7.1: Improved the wording for 1 problem question to provide better clarity.
- Section 7.4: Improved the instruct screen 4 to avoid ambiguity.
- Section 7.6: Improved problem question generation for 1 problem question to increase the problem's variability.
- Section 8.2: Added keypad availability for instruct screen 12.

- Section 9.2: Improved the animation on instruct screen 2 to help reinforce section topics.
- Section 10.1: Updated images on instruct screens 9, 15, and 18. Added notes for clarification to 4 questions.
- Section 10.2b: Updated image on instruct screen 3.

New Questions

- Section 1.2: Added a problem question which now allows for a greater consistency of the problem question generation.
- Section 5.7: Added a problem question such that when solving for the length of the hypotenuse, the solution is a whole number, perfect right triangle.

Introductory Algebra

Updates - Version 6.2

Hawkes Learning Systems is pleased to introduce version 6.2 of Introductory Algebra. The new features, enhancements, & content changes are listed below by section number.

Enhancements

- Sections 3.2: Changed problem constraints for one of the questions so that the common factor is more easily recognizable.
- Section 4.1: Improved randomization of iterations in two questions.
- Section 7.5: Changed problem constraints for two of the questions so that the coefficients are easier to factor using the ac-method.
- Section 8.2: In the fall 2008 software, all 16 questions asked for multiplication or division of a rational expression. For fall 2009, the multiplication iterations and the division iterations were split into separate questions so that instructors can choose which type their students will receive.
- Section 9.2: Iterations with square roots were split from iterations with cube roots into separate questions. Iterations with perfect squares or cubes in the numerator were split into separate questions. Iterations that required rationalizing the denominator were split into separate questions.

New Questions

- Section 1.4: Added four questions for long division with decimals.
- Section 4.6: Added three questions where the slope and y-intercept are entered to graph the boundary line of a linear inequality.
- Section 5.6: Added two questions where the slope and y-intercept are entered to graph the boundary lines of linear inequalities in a system.
- Section 9.1: Added one question for simplifying a radical expression where “not a real number” is the correct answer.

Multimedia

- Added videos to 8 sections (R.1, R.2, R.3, R.4, R.5, 3.3, 3.5a, and 8.1b) that previously did not have videos. All sections now have videos.
- Made corrections or enhancements to videos for 7 sections (1.1a, 2.1a, 2.3, 3.2, 6.3b, 7.1a, and 10.4).

Intermediate Algebra

Updates - Version 5.10

Hawkes Learning Systems is pleased to introduce version 5.10 of Intermediate Algebra. The new features, enhancements, & content changes are listed below by section number.

Enhancements

- Sections 4.6: Changed problem constraints for two of the questions so that the coefficients are easier to factor using the ac-method.
- Sections 5.1b: In the fall 2008 software, all 16 questions asked for multiplication or division of a rational expression. For fall 2009, the multiplication iterations and the division iterations were split into separate questions so that instructors can choose which type their students will receive.
- Sections 6.1b: Iterations with square roots were split from iterations with cube roots into separate questions. Iterations with perfect squares or cubes in the numerator were split into separate questions. Iterations that required rationalizing the denominator were split into separate questions.

New Questions

- Section 1.1a: Added one question where a rational number is given and needs to be written as a terminating decimal. Added one question where a rational number needs to be written as a repeating decimal.
- Section 1.3c: The fall 2008 questions with absolute value equations are four parts. Added two questions that only ask for part 3, where the solution is entered in set notation.
- Section 1.6b: The fall 2008 questions with absolute value inequalities are five parts. Added two questions that only ask for part 4, where the solution is entered in interval and algebraic notations, and part 5, where the solution set is graphed on a number line.
- Section 2.5: Added three questions in which the slope and y-intercept are entered to graph the boundary line of a linear inequality.

- Section 3.7: Added two questions in which the slope and y-intercept are entered to graph the boundary lines of linear inequalities in a system.
- Section 6.1a: Added one question for simplifying a radical expression in which "not a real number" is the correct answer.
- Section 6.5: Added two questions in which the student is asked to simplify a radical with a negative radicand (like problems 11-24 in the 5th edition text). In one question, the absolute value of the radicand is a perfect square, and in the other question, the absolute value of the radicand has a perfect square factor.
- Section 6.5: Added two questions in which the student identifies the real and imaginary parts of a complex number (like problems 1-10 in the 5th edition text).
- Section 6.5: Added two questions in which the student solves equations involving complex numbers for x and y (like problems 47-60 in the 5th edition text).
- Section 9.6: Added four questions for solving equations using exponents and logarithms. Of the four questions, one has the form $8^{x-5}=1201$, one has the form $10^x=97$ (base is 10), one has the form $7^x=9$, and the final question has the form $e^{4x}=120$.
- Section 9.7: Added two half-life questions in which the value of k is already given and the student solves for the final value.

Multimedia

- Added videos to 3 sections (1.4a, 1.5, and 4.7) that previously did not have videos. All sections now have videos.
- Made corrections to the video for section 7.3.

Introductory & Intermediate Algebra

Updates - Version 1.5

Hawkes Learning Systems is pleased to introduce version 1.5 of *Introductory & Intermediate Algebra*. The new features, enhancements, & content changes are listed below by section number.

Enhancements

- Sections 4.1: Improved randomization of iterations in two questions.
- Sections 6.4: Changed problem constraints for two of the questions so that the coefficients are easier to factor using the ac-method.
- Sections 7.1b: In the fall 2008 software, all 16 questions asked for multiplication or division of a rational expression. For fall 2009, the multiplication iterations and the division iterations were split into separate questions so that instructors can choose which type their students will receive.
- Sections 10.1b: Iterations with square roots were split from iterations with cube roots into separate questions. Iterations with perfect squares or cubes in the numerator were split into separate questions. Iterations that required rationalizing the denominator were split into separate questions.

New Questions

- Section 4.6: Added three questions in which the slope and y-intercept are entered to graph the boundary line of a linear inequality.
- Section 10.1a: Added one question for simplifying a radical expression in which “not a real number” is the correct answer.
- Section 10.5: Added two questions where the student is asked to simplify a radical with a negative radicand (like problems 11-24 in the 1st edition text). In one question, the absolute value of the radicand is a perfect square, and in the other question, the absolute value of the radicand has a perfect square factor.
- Section 10.5: Added two questions where the student identifies the real and imaginary parts of a complex number (like problems 1-10 in the 1st edition text).

- Section 10.5: Added two questions where the student solves equations involving complex numbers for x and y (like problems 47-60 in the 1st edition text).
- Section 13.6: Added four questions for solving equations using exponents and logarithms. Of the four questions, one has the form $8^{x-5}=1201$, one has the form $10^x=97$ (base is 10), one has the form $7^x=9$, and the final question has the form $e^{4x}=120$.
- Section 13.7: Added two half-life questions in which the value of k is already given and the student solves for the final value.
- Section 14.7: Added two questions in which the slope and y-intercept are entered to graph the boundary lines of linear inequalities in a system.
- Section A.1: The fall 2008 questions with absolute value inequalities are five parts. Added two questions that only ask for part 4, where the solution is entered in interval and algebraic notations, and part 5, where the solution set is graphed on a number line.

Multimedia

- Added videos to 6 sections (1.8c, 3.3, 3.4, 6.7, 14.1, and 14.2) that previously did not have videos. All sections now have videos.
- Made corrections or Enhancements to the videos for 6 sections (1.1a, 1.7, 2.1a, 2.4, 6.1a, and 11.3).

Updates - Version 2.9

Hawkes Learning Systems is pleased to introduce version 2.9 of College Algebra. The new features, enhancements, & content changes are listed below by section number.

Enhancements

- Section 1.2: Updated graphics in the Instruct Screens. Added Instruct Interaction Screen 17 which is a math game testing the user's knowledge of the Order of Operations.
- Section 1.3a: Added Instruct Interaction Screens 3 and 11 which visibly demonstrate positive and negative exponents.
- Section 1.3b: Updated the directions of one question to refer to the given figure as a "right trapezoidal cylinder" for clarity. Updated graphics in the Instruct Screens.
- Section 1.5: Updated graphics in the Instruct Interaction Screens. Updated all questions to display final answer in descending order.
- Section 2.2: Updated graphics in the Instruct Screens. Also updated one question to trigger an "Improper Format" message when the user forgets to enter a comma in their answer, rather than immediately marking that answer as incorrect.
- Section 2.5: Changed the default curriculum to allow only 3 strikes, rather than 4, changing the percent mastery required to 79%.
- Section 2.5: Placed more reasonable limitations on the acceptance of unsimplified answers.
- Section 3.1: Updated graphics in the Instruct Screens.
- Section 3.2: Updated graphics in the Instruct Screens.
- Section 3.3: Added Instruct Interaction Screen 13 to quiz the student's ability to find the equation of a graphed line.
- Section 3.5: Updated graphics in the Instruct Screens. Added Instruct Interaction Screen 1 to allow the user to manipulate a graphed inequality (or basic set of inequalities) to see how those manipulations affect the graph.
- Section 4.1: Updated graphics in the Instruct Screens. Added Instruct Interaction Screen 10 to allow the user to drag a ruler across a graphed relation to determine whether or not it is a function. Also updated the first four questions to trigger an "Improper Format" message when the user forgets to enter a comma in their answer, rather than immediately marking that answer as incorrect.
- Section 4.3a: Changed the default curriculum to allow only 3 strikes, rather than 4, changing the percent mastery required to 81%.
- Section 4.4: Added Instruct Interaction Screen 14 to allow the user to manipulate a given base function to see how those manipulations are reflected in both the equation and the graph of the function.
- Section 4.5: Updated the displayed notation in three questions to be " $(f + g)(x)$ " rather than just " $(f + g)$ ". Also updated the displayed notation in two questions to be " $(f \circ g)(x)$ ", rather than just " $(f \circ g)$ ".
- Section 6.2: Added Instruct Interaction Screen 14 to graphically demonstrate the effects of changing the parameters of the standard form of an ellipse. Also updated the graphics in the Instruct Screens.
- Section 6.3: Added Instruct Interaction Screens 6 and 7 to graphically demonstrate the effects of changing the parameters of the two standard forms of a parabola.
- Section 6.4: Added Instruct Interaction Screens 17 and 18 to graphically demonstrate the effects of changing the parameters of the two standard forms of a hyperbola.
- Section 7.2: Updated one question to accept more variations of the correct answer. Also updated tolerances, as necessary.

Updates - Version 2.9

- Section 7.5: Updated Solution Screen for one question to display decimal approximation in addition to exact answer. Also updated tolerance for this question to allow the answer to be entered in terms of log or the natural log. Enabled input of “ln()” in input box for two other questions, so the user can now enter the answer in either terms. Also now allow larger bases for “log()” to accept more variations of correct answers. Standardized input box for six questions to always allow comma, rather than only allowing it when it is needed. Improved parameters of one question to make iterations more easily factored. Updated wording of one question for clarity. Also updated tolerances, as necessary.
- Section 8.1: Updated graphics in the Instruct Screens.
- Section 8.2: Added Instruct Interaction Screen 7 to allow the user to drag the equations from a system to a matrix to see how that equation is expressed in the matrix. Added Instruct Interaction Screen 12 which works out a given matrix to reduced row echelon form, but requests that the user enter the row operations over the arrows between each matrix.
- Section 8.6: Added Instruct Interaction Screen 17 to allow the user to manipulate a graphed set of inequalities and the objective function (maximize or minimize) to see how those changes affect the given graph and the max/min value.
- Section 9.3: Changed the default curriculum to allow only 2 strikes, rather than 3, changing the percent mastery required to 83%.
- Section 9.6: Changed the default curriculum to allow only 2 strikes, rather than 3, changing the percent mastery required to 82%.

New Questions

- Section 1.4a: Added four new questions on simplifying radical expressions that include the directions “...assume all variables are positive” to offer options that do not require correct answer to include absolute value bars.
- Section 1.5: Added three new questions with lower level of difficulty on multiplication of polynomials and dividing polynomials by a constant.
- Section 2.5: Added three new one-step questions finding restricted values of rational expressions.
- Section 3.5: Added ten new three-step questions that separate graphing systems of linear inequalities into separate steps. New graphing systems of linear inequalities questions are available in WebTest.
- Section 4.4: Added twenty-six new two-step questions covering transformations of functions that separate recognition of the base function from graphing the transformed function and finding its domain and range.
- Section 6.1: Added six new two-step questions requesting vertical and horizontal asymptotes.
- Section 8.1: Added two new questions defining supplementary and complementary angles and providing information to set up a system of equations to solve for the values of the two angles.

Multimedia

- Sections 1.2, 1.3b, 2.1a, 2.3: Created new video to replace the ones that needed corrections.
- Sections 4.2b, 4.3b, A.1, A.4: Created videos for these sections that did not previously have them.
- All other sections: Updated videos.

Updates - Version 1.4

Hawkes Learning Systems is pleased to introduce version 1.4 of Precalculus. The new features, enhancements, & content changes are listed below by section number.

Enhancements

- Section 1.1b: Updated graphics in the Instruct Screens. Added Instruct Interaction Screen 17 which is a math game testing the user's knowledge of the Order of Operations.
- Section 1.3a: Added Instruct Interaction Screens 3 and 11 that visibly demonstrate positive and negative exponents.
- Section 1.3b: Updated the directions of one question to refer to the given figure as a "right trapezoidal cylinder" for clarity. Updated graphics in the Instruct Screens.
- Section 1.2a: Updated graphics in the Instruct Interaction Screens. Updated all questions to display final answer in descending order.
- Section 1.6: Updated graphics in the Instruct Screens. Also updated one question to trigger an "Improper Format" message when the user forgets to enter a comma in their answer, rather than immediately marking that answer as incorrect.
- Section 1.8a: Changed the default curriculum to allow only 3 strikes, rather than 4, changing the percent mastery required to 79%.
- Section 1.8a: Placed more reasonable limitations on the acceptance of unsimplified answers.
- Section 2.1: Updated graphics in the Instruct Screens.
- Section 2.2: Updated graphics in the Instruct Screens.
- Section 2.3: Added Instruct Interaction Screen 13 to quiz the student's ability to find the equation of a graphed line.
- Section 2.5: Updated graphics in the Instruct Screens. Added Instruct Interaction Screen 1 to allow the user to manipulate a graphed inequality (or basic set of inequalities) to see how those manipulations affect the graph.
- Section 3.1: Updated graphics in the Instruct Screens. Added Instruct Interaction Screen 10 to allow the user to drag a ruler across a graphed relation to determine whether or not it is a function. Also updated the first four questions to trigger an "Improper Format" message when the user forgets to enter a comma in their answer, rather than immediately marking that answer as incorrect.
- Section 3.3: Changed the default curriculum to allow only 3 strikes, rather than 4, changing the percent mastery required to 81%.
- Section 3.5: Added Instruct Interaction Screen 14 to allow the user to manipulate a given base function to see how those manipulations are reflected in both the equation and the graph of the function.
- Section 3.6: Updated the displayed notation in three questions to be " $(f + g)(x)$ " rather than just " $(f + g)$ ". Also updated the displayed notation in two questions to be " $(f \circ g)(x)$ ", rather than just " $(f \circ g)$ ".
- Section 5.2: Updated one question 16 to accept more variations of the correct answer. Also updated tolerances, as necessary.
- Section 5.5: Updated Solution Screen for one question to display decimal approximation in addition to exact answer. Also updated tolerance for this question to allow the answer to be entered in terms of log or the natural log. Enabled input of " $\ln()$ " in input box for two other questions, so the user can now enter the answer in either terms. Also now allow larger bases for " $\log()$ " to accept more variations of correct answers. Standardized input box for six questions to always allow comma, rather than only allowing it when it is needed. Improved parameters of one question to make iterations more easily factored. Updated wording of one question for clarity. Also updated tolerances, as necessary.

Updates - Version 1.4

- Section 8.3b: Updated Part 2 of all questions to have a hot link to display the answer from the previous step when in Practice or Certify.
- Section 8.4a: Updated one question to always have parameters that work out to be common angles.
- Section 9.1: Added Instruct Interaction Screen 14 to graphically demonstrate the effects of changing the parameters of the standard form of an ellipse. Also updated the graphics in the Instruct Screens.
- Section 9.2: Added Instruct Interaction Screens 6 and 7 to graphically demonstrate the effects of changing the parameters of the two standard forms of a parabola.
- Section 9.3: Added Instruct Interaction Screens 17 and 18 to graphically demonstrate the effects of changing the parameters of the two standard forms of a hyperbola.
- Section 10.1: Updated graphics in the Instruct Screens.
- Section 10.2: Added Instruct Interaction Screen 7 to allow the user to drag the equations from a system to a matrix to see how that equation is expressed in the matrix. Added Instruct Interaction Screen 12 which works out a given matrix to reduced row echelon form, but requests that the user enter the row operations over the arrows between each matrix.
- Section 10.7: Added Instruct Interaction Screen 17 to allow the user to manipulate a graphed set of inequalities and the objective function (maximize or minimize) to see how those changes affect the given graph and the max/min value.
- Section 11.3: Changed the default curriculum to allow only 2 strikes, rather than 3, changing the percent mastery required to 83%.
- Section 11.6: Changed the default curriculum to allow only 2 strikes, rather than 3, changing the percent mastery required to 82%.

New Questions

- Section 1.2c: Added four new questions on simplifying radical expressions that include the directions "...assume all variables are positive" to offer options that do not require correct answer to include absolute value bars.
- Section 1.3: Added three new questions with lower level of difficulty on multiplication of polynomials and dividing polynomials by a constant.
- Section 1.8a: Added three new one-step questions finding restricted values of rational expressions.
- Section 2.5: Added ten new three-step questions that separate graphing systems of linear inequalities into separate steps. New graphing systems of linear inequalities questions are available in WebTest.
- Section 3.5: Added twenty-six new two-step questions covering transformations of functions that separate recognition of the base function from graphing the transformed function and finding its domain and range.
- Section 4.5: Added six new two-step questions requesting vertical and horizontal asymptotes.
- Section 7.4: Added two new questions solving trigonometric equations. One question includes only the sine, cosine, and tangent functions, while the other includes only the cosecant, secant, and cotangent functions.
- Section 10.1: Added two new questions defining supplementary and complementary angles and providing information to set up a system of equations to solve for the values of the two angles.

Updates - Version 1.4

Multimedia

- Sections 1.1b, 1.2b, 1.5a, 1.7, 3.4, 6.3, 8.3a, 8.4a: Created new video to replace the ones that needed corrections.
- Sections 3.2b, 6.2, 8.3c: Created videos for these sections that did not previously have them.
- All other sections: Updated videos.

Essential Calculus

Updates - Version 1.4

Hawkes Learning Systems is pleased to introduce version 1.4 of Essential Calculus. The new features, enhancements, & content changes are listed below by section number.

Enhancements

- Added multiple choice questions for the following 31 sections (listed by chapter):
 - Chapter 1:
 - 1.6a
 - Chapter 2:
 - 2.1a, 2.1b, 2.2b, 2.3b, 2.4, 2.5a, 2.5b
 - Chapter 3:
 - 3.1, 3.2, 3.4a, 3.4b, 3.5
 - Chapter 4:
 - 4.1a, 4.1b, 4.4, 4.5
 - Chapter 5:
 - 5.1, 5.2, 5.3
 - Chapter 6:
 - 6.1, 6.2, 6.3b, 6.4, 6.5
 - Chapter 7:
 - 7.1, 7.4, 7.5
 - Chapter 8:
 - 8.1, 8.2, 8.3
- Section 1.2: Variability is increased for one question.
- Section 1.3: Improved Solution screens.
- Section 1.5: User interface for graphing problems improved.
- Section 1.6a: Flexibility for user input and tolerance for correct answers have both been increased.
- Section 1.7: Changed all questions to provide correct answer in fraction form. Radicals may now be input for some questions.
- Section 1.8: Accept fractional input as correct for some questions. Improved tolerance in some Step by Step and main screens.
- Section 2.1a: Increased tolerance for decimal answers. User is now allowed to enter the symbol for infinity for certain questions.
- Section 2.3a: Additional forms of correct answers are now accepted.
- Section 2.3b: Increased tolerance for unsimplified forms. Improved wording for one question.
- Section 2.5b: Step by Step screens are improved for one question. Greater flexibility for user input is now allowed.
- Section 3.1: Consistency in level of difficulty has been improved for several questions. Additional forms of correct answers are now accepted.
- Section 3.2: Flexibility for user input and tolerance for correct answers have both been increased.
- Section 3.3: Decimal input is now allowed for some questions. Additional forms of correct answers are now accepted.
- Section 3.4b: Increased flexibility for user input.
- Section 3.5: Additional Explain Error screens have been added.
- Section 4.2: Decimal input is now allowed for some questions. Solution screens are improved. Additional forms of the correct answer are now accepted.
- Section 4.3: Mixed numbers are now accepted as interval endpoints.
- Section 4.5: Decimal tolerance increased for correct answers.
- Section 5.1: Variation increased for one question.
- Section 5.2: Tolerance for correct answers widened for some questions. Solution screen for one question is improved.
- Section 5.3: Flexibility for user input and tolerance for correct answers have both been increased. Calculations for Solution Screens are shown in greater detail for one question.
- Section 5.4: Flexibility for user input and tolerance for correct answers have both been increased.
- Section 5.5b: Additional forms of correct answers are now accepted.

Updates - Version 1.4

- Section 6.3a: Graph appearance improved.
- Section 6.4: Tolerance for correct answers has been increased.
- Section 6.5: Tolerance for correct answers has been increased.
- Section 7.1: Flexibility for user input and tolerance for correct answers have both been increased. An additional Explain Error screen has been added.
- Section 7.5: An additional Explain Error screen has been added.
- Section 8.3: Problem generation improved.
- Section 8.4: One question was redesigned.
- Section 8.6: Improved Solution screen for one question.
- Section 9.3: Flexibility for user input and tolerance for correct answers have both been increased.

New Questions

- Section 1.8: Added 2 questions for finding the break-even points for revenue and costs functions.
- Section 3.1: Added 4 questions for using the Product Rule or Quotient Rule to find the derivative. These are simplified versions of existing questions.
- Section 3.2: Added 4 questions for using the Chain Rule to find the derivative. These are simplified versions of existing questions.
- Section 3.4b: Added 5 questions for identifying critical points and using the First Derivative Test.
- Section 4.1a: Added 16 questions for finding the second derivative, identifying intervals of concavity, and identifying points of inflection.
- Section 4.1b: Added 10 questions for finding the second derivative and using the Second Derivative Test to locate any local extrema.
- Section 4.5: Added 9 questions for applications using the derivative.
- Section 5.4: Added 3 questions for finding the derivative of an exponential function. These are

- simplified versions of existing questions.
- Section 6.3b: Added 10 questions for finding the definite integral.
- Section 8.2: Added 2 questions for partial derivatives.

Multimedia

- Added video to all sections.

Updates - Version 9.4

Hawkes Learning Systems is pleased to introduce version 9.4 of the Statistics Software. The new features, enhancements, & content changes are listed below.

Enhancements

- Over 225 new questions available in Practice and Certify.
- Default curriculum has been updated to include a wider variety of problem types.
- Chapter Reviews added to the *Discovering Statistics* and *Beginning Statistics* tables of contents.
- More than 50 questions added for WebTest in the “Additional Statistics Questions” plugin.
- More than 70 questions added for WebTest in the “Beginning Statistics” plugin.
- The word “Poisson” was removed from the word problems in the Poisson Distribution section.
- Instruct screens updated for the following sections.
 - Measures of Center
 - Measures of Dispersion
 - Measures of Relative Position
 - Discrete Random Variables (aka Expected Value)
 - The Binomial Distribution
- New section “Applying the Standard Deviation” with all new topics. “3.2b” in Classical and *Beginning Statistics* and “4.5 – 4.10” in *Discovering Statistics*.
 - Sample mean, variance, and standard deviation of grouped data
 - Coefficient of variation
 - Empirical rule
 - Chebyshev’s Theorem
 - Introduction to proportions
- New topics in Instruct screens and questions of existing sections.
 - Weighted mean
 - Trimmed mean
 - Moving average
 - Quartiles
 - Five-number summary

- Interquartile range
- Outliers
- Box plots
- Using probability distributions to compare pay-out and risk levels
- Expected value of a binomial random variable
- Standard deviation of a binomial random variable
- All questions with data presented in a table or list now have a “Copy Data” button to allow the user to copy and paste the data into Excel or Minitab.
- Data windows in questions are now movable on the screen.
- Scatter Plots in the *Discovering Statistics* table of contents no longer includes hypothesis testing.

New Questions

Measures of Center

- Calculate:
 - Mean, median, and mode (in one step)
 - Weighted mean
 - Trimmed mean
 - Two or three period moving average
- Determine:
 - The most appropriate measure of center.
 - The mean, median, and mode shown on the curve.

Measures of Dispersion

- Calculate:
 - Sample variance, sample standard deviation, and range (in one step)
 - Population variance, population standard deviation, and range (in one step)
 - Sample standard deviation for 20 real-world data values

Updates - Version 9.4

- Decide if the given statement about the variance or standard deviation of a data set is true or false.

Applying the Standard Deviation (new section)

- Calculate:
 - Sample variance of grouped data
 - Sample standard deviation of grouped data
 - Sample mean of grouped data
 - Coefficient of variation (CV) for two data sets, and decide which data set has the larger or smaller spread.
 - Population proportion
 - Sample proportion
- Use the empirical rule to determine the percentage of data that:
 - Falls within the given range.
 - Is greater than the given value.
 - Is less than the given value.
 - Is at least the given value.
 - Is no more than the given value.
- Use Chebyshev's Theorem to determine the:
 - Minimum percentage of data that falls within the given range.
 - Range in which at least 75% or 88.9% of the data will reside. (Classic and *Beginning Statistics* tables of contents)
 - Range in which at least 75% or 88.89% of the data will reside. (*Discovering Statistics* table of contents)

Measures of Relative Position

- Calculate:
 - Five-number summary
 - Interquartile range
 - The value that represents the given percentile.
 - The percentile associated with the given value.
 - The z-score of the given data value.

- Determine:
 - Which assembly line matches the specifications best. (Uses z-scores)
 - Which z-score matches the location indicated on the given graph.
 - If there is an outlier in the given data set.
- Solve word problems concerning z-scores, percentiles, and ranges.
- Construct a box plot from the data given.
- Answer questions concerning the box plot shown.

Classical Probability

- Calculate:
 - Empirical probability (Classic and *Beginning Statistics* tables of contents)
 - Relative frequency probability (*Discovering Statistics* table of contents)
- Determine:
 - The sample space for a given experiment.
 - Whether the probability is classical, empirical, or subjective. (Classic and *Beginning Statistics* tables of contents)
 - Whether the probability is classical, relative frequency, or subjective. (*Discovering Statistics* table of contents)

Probability Rules

- Find the number of outcomes in the complement of the given event.
- Describe the complement of the given event.
- Determine whether:
 - Two events are mutually exclusive.
 - Two events are independent or dependent.
 - The given value could be a probability.

Updates - Version 9.4

Basic Counting Rules

- Evaluate expressions containing:
 - Factorials
 - Combinations
 - Permutations
- Use the following counting rules to determine the total number of outcomes:
 - Fundamental counting principle
 - Factorial rule
 - Combination rule
 - Permutation rule
 - Special permutation formula (Classic and *Beginning Statistics* tables of contents)
 - Formula for distinguishable permutations (*Discovering Statistics* table of contents)
- Use counting techniques to compute classical probability.

Additional Counting Techniques

- One and two step problems combining the use of several of the following counting rules to determine the total number of outcomes:
 - Fundamental counting principle
 - Factorial rule
 - Combination rule
 - Permutation rule
 - Special permutation formula (Classic and *Beginning Statistics* tables of contents)
 - Formula for distinguishable permutations (*Discovering Statistics* table of contents)
- Use the given conditions to determine the number of outcomes that satisfy those conditions. Then use the following to determine the total number of possible outcomes and finally to calculate the classical probability.
 - Fundamental counting principle
 - Combination rule
 - Complement rule
 - Special permutation formula (Classic and *Beginning Statistics* tables of contents)
 - Formula for distinguishable permutations (*Discovering Statistics* table of contents)

Discrete Random Variables (aka Expected Value)

- Given a probability distribution, calculate:
 - Expected value
 - Variance
 - Standard deviation
 - Probability
- Determine:
 - Whether the distribution is or is not a probability distribution.
 - Which probability distribution has the higher payout.
 - Which probability distribution has the lower risk.
 - The expected value for each scenario and how much a person can expect to win or lose.
- Classify the statement as describing a discrete or a continuous random variable.
- Create the probability distribution.

Binomial Distribution

- Calculate:
 - The probability of a given scenario.
 - The combination given.
 - Expected Value
 - Standard Deviation
- Determine whether the given procedure describes a binomial distribution.

Hypothesis Testing

The following single step questions were added to the sections listed below.

- Single step questions:
 - Set up the null and alternative hypotheses.
 - Find the test statistic.
 - Determine the decision rule.
 - Decide whether to reject or fail to reject the null hypothesis.
 - Determine the conclusion of the hypothesis test.

Updates - Version 9.4

- Sections to which questions were added:
 - Hypothesis Testing Means (t Value) (aka Hypothesis Testing for Means (Small Samples))
 - Hypothesis Testing Means (P Value) (aka Hypothesis Testing for Means (Large Samples))
 - Hypothesis Testing Proportions (P Value) (aka Hypothesis Testing for Population Proportions)
 - Hypothesis Testing Means (z Value)
 - Hypothesis Testing Proportions (z Value)

Multimedia

- Audio has been updated for all tables of contents.

Updates for Fall 2009

Enhancements

- Added option to set order of questions in certify. Available orders are:
 - Random
 - By difficulty-Low to High
 - By difficulty-High to LowOption can be set for each section or overall (all sections)
- In the main window listing the sections:
 - User can now adjust the width of the columns.
 - User can now scroll through the table with a wheel mouse.
 - Buttons from the top tool bar that already had buttons in the side tool bar have been removed, for a simpler, cleaner interface.
- Reorganized Curriculum Settings window for clarity.
- Additions to the Edit Section window:
 - Option to print assigned questions (located in the Tools menu).
 - View filter to view assigned questions only (for ease of instructor to click through and see which questions are assigned).
 - The section number to the top of the window.
- Added an option to disable “autocertify”, i.e., even if the students have answered enough questions correctly to certify, still make them complete ALL the questions in certify. Option added to the “Settings” window, “Require student to answer any remaining questions in certify after achieving mastery”.

Updates for Fall 2009

Printing and Exporting

- Added printing/exporting options:
 - Include/exclude points
 - Include/exclude answer blanks (currently does not apply to answer blanks included with graphs or graphics)
 - Include/exclude workout space (user indicates number of lines to include after each step, applies to whole test)
 - Include/exclude page numbers, headers, and footers
 - User can choose to print in color or black and white
- **Printing:**
 - When possible, the entire step is kept together (rather than splitting across pages).
 - Printing in black and white now prints in true black and white, instead of monochrome.
- **Exporting:**
 - Now uses a template, so the user's default Word settings, such as hide white space, do not affect the appearance of the export.
 - Improved the speed for exporting.
 - Exports go to user data path by default.
 - Added an option to export multiple versions.
 - User can now choose what to export: questions only, answers only, questions and answers, answer sheet.
- The Answers Only document no longer includes unnecessary graphs, images, or answer boxes. Now it is simply the answer number followed by the answer.
- Margin size has been decreased.
- When possible, multiple-choice answer options are arranged side by side rather than stacked.
- Question-specific changes to make instructions more concise.

Student Web Test

- **Test Review:**
 - Renamed the "Data" button to be "Results".
 - Switched order of explain error and solution, so that explain error appears first to the student when they have made a mistake.
 - Made Solution available for all questions (not just missed or incorrect).
 - Added option for student to choose to print or export all questions or just the questions missed.
 - Now allows printing of Data Reports (options to choose which report(s) to print).
- **Take Test:** Renamed "Instructor Test" to "Instructor-Made Test" and renamed "Practice Test" to "Self-Made Test" on the "Select a Test" window.
- **Section Statistics – Tabular data report:** Added text: "Click on the section link to be taken to a practice session of question types you missed, if any, for that section." and made "% correct" lowest to highest the default sorting order.

Enhancements

- Added product name and version to all WebTest windows.
- Changed "Chapter ## Review and Test" to just "Chapter ## Review" so students would not confuse it with instructor-made tests.
- **Review Student Tests:**
 - Instructor can view all reports.
 - Instructor can export test review (in addition to previously being able to print).
 - Added options to print/export reports.
 - Added options to print/export missed questions only.
 - Added link to view explain error and solution as on the student side.
- Improved some Advanced Question Builder functions' descriptions and calculations.
- Added "course admin view" for Review Student Tests so course administrators can see the tests

of the students under other instructors.

- Delayed Grading: We have added an option to the ePublish page where the instructor can chose to not allow the students to see the grade on the exam until after some point (a. After this date _____, b. after the end date of the test c. instructor manually releases grade). This includes not showing the grade in progress report, not including the grade on the certificate, not showing the grade on the pop up that appears at the end of the test, and not allowing test review until the grades have been released (or whenever the instructor has chosen to allow test reviews, whichever is later.)
- For printed and exported tests, we have removed the images of buttons needed for the software, such as the “Clear” button.