

Precalculus

Enhancements

- This year, over 175 new question types have been added, 39 of which incorporate user-directed graphing, including a completely new graphing mechanism.
- There is now more variation in question presentation (sign changes, dynamic word problems, format changes) and more application problems (20 new application problems in 6 lessons).
- Also, more question types have been split into separate questions to allow instructors greater control of the content and the level of difficulty that their students will see.

New Questions

- **1.2a: Properties of Exponents**
Added new question type similar to existing question type 18, but of easy level of difficulty.
- **1.2c: Properties of Radicals**
Added new question type similar to existing question type 18, but using only square roots.
- **1.2d: Rational Number Exponents**
Added "Not Possible" option to simplification questions.
Added 2 new question types similar to existing question type 1, but using only square roots.
Split existing question type 5 into two question types; one in which the result is an integer exponent, one in which the result is a fractional exponent.
Added 2 new question types: converting rational exponent notation to radical notation and vice versa.
Added new question type similar to existing question type 8, except that the result has a fractional exponent.
- **1.3: Polynomials and Factoring**
Added new question type involving a difference of squares with a medium level of difficulty.
- **1.4: The Complex Number System**
Added new question type like existing question type 8, except with no i^2 term.
- **1.5a: Linear Equations in One Variable**
Added new question type like existing question type 4 (in which the answer is always 0), where the answer is never 0.
- **1.5b: Applications of Linear Equations in One Variable**
Added 3 new question types: application problems involving tax, tip, and shipping charges.
- **1.6: Linear Inequalities in One Variable**
Added 3 new question types; minor variations on different linear inequalities.
Added 5 new question types with variation in inequality symbols.
Added 2 new word problem question types involving frequent flyer miles and fruit harvesting.
- **1.7a: Quadratic Equations in One Variable**
Added variation in signs to several question types.
- **2.2: Linear Equations in Two Variables**
Added new question type similar to existing question type 16, except that lines through the origin have a slope other than ± 1 .
Added 2 new question types of graphing linear equations with a low level of difficulty.
- **2.4: Parallel and Perpendicular Lines**
Added 8 new question types similar to existing question types 9-12 and 17-20, having only a single step asking if two given lines are parallel, perpendicular, or neither.
- **3.1: Relations and Functions**
Added several new question types for evaluating functions, some where the possibility of having to evaluate $f(x+a) - f(x)$ has been removed, some where this is the only possible iteration.
Added new question types similar to existing question types 7-10, with a third part added asking the student to find the domain of the function.

New Questions (continued)

- **3.2a: Linear and Quadratic Functions**
Added alternate solution Hotword to several question types for finding the vertex of a parabola. Duplicated several question types from chapter 3 concerning lines, rewritten in function terms. Split existing question types 8 and 9 to separate integer answers and fractional answers.
- **3.2b: Max/Min Applications of Quadratic Functions**
Added 5 new question types: application problems involving revenue, cost, projectile motion, and fencing.
- **3.3: Other Common Functions**
Added 4 new question types: evaluation of piecewise-defined functions with linear and quadratic portions.
Added 6 new questions types: new graphing mechanism allowing for graphing of functions to the tenths place.
- **3.5: Transformations of Functions**
Added 8 new question types: lower level of difficulty transformation questions (involve only a single transformation).
- **3.7: Inverses of Functions**
Split existing question type 10 into two question types: one in which the x has an exponent of 1, one with exponents greater than 1.
Added new question type: user asked to find the inverse of an even function.
- **4.1: Introduction to Polynomial Equations and Graphs**
Redesigned existing question types 1-4 to be balanced between “yes” and “no” answers.
Redesigned existing question types 9-11 to improve incorrect graphs (distracters).
Added 2 new question types like existing question types 9-11, but using a fourth degree polynomial.
Added 4 new question types like existing question types 12-14 with new inequality forms.
Added 4 new question types asking students to determine end behavior of polynomials.
- **4.3: Locating Real Zeros of Polynomials**
Redesigned existing question types 18-21 to correctly apply the Intermediate Value Theorem.
- **4.4: The Fundamental Theorem of Algebra**
Added 3 new question types with smaller values to generate more manageable answers.
- **4.5b: Rational Inequalities**
Added 4 new question types with different inequality symbols, similar to existing question types 8-13.
- **5.2: Applications of Exponential Functions**
Added 2 new question types involving interest with low level of difficulty.
- **5.4: Properties and Applications of Logarithms**
Added 2 new question types involving condensing logarithmic expressions of low difficulty level.
- **5.5: Exponential and Logarithmic Equations**
Added 4 new question types involving half-life and doubling/tripling times.
Added new question type involving continuously compounded interest.
- **10.1: Solving Systems by Substitution and Elimination**
Added new question type: application problem for a 2×2 system of equations.
- **10.4: The Algebra of Matrices**
Added several new question types with different matrix sizes for matrix algebra questions.
- **10.7: Linear Programming**
Added 4 new question types: linear programming, including 3 application questions involving managing an orchard, investing money, and supplying a resort as well as a question involving an unbounded feasible region.
- **11.3: Geometric Sequences and Series**
Split existing question type 12 into three question types based on level of difficulty and whether the series converges or diverges.

General Changes

- Added new product specific icons that utilize the company logo.
- Improved Edit Course ID Window to assist user in entering the correct course ID:
 - Replaced “Course ID” with “Hawkes Course ID” in all places to help distinguish from a school’s course id.
 - Added a link “Find my Hawkes Course ID” that takes the user to our webpage where they can look up their course ID by school.
 - Added custom check and message for each of the following common issues: i) user is not connected to the internet, ii) user has entered a license number, iii) user has entered an access code.
 - Added a Help link that opens the pdf HLS Internet Access for additional guidance.
 - Added on screen message indicating Hawkes Course ID will not contain numbers or spaces
 - Added a check box option for “Always Work Offline”
- Statistics ONLY: Added “Never Ask Again” check box option to warning that client Table of Contents does not match server Table of Contents.
- Hot words windows are now movable.
- Added title bar with close button to how word windows.
- “Product Tour” renamed “Video Tour” to be clearer.
- Added keyboard short cuts:
 -) enters () in text box (This is in addition to existing keyboard short cut of (.)
 -] enters [] in text box (This is in addition to existing keyboard shortcut of [.]
 - } enters {} in text box (This is in addition to existing keyboard short cut of {.)
 - Ctrl+(enters (] in text box
 - Ctrl+) enters]) in text box
 - Ctrl+[enters [) in text box
 - Ctrl+] enters]) in text box
- Online grade book link compatible with browsers other than Internet Explorer.
- Statistics ONLY – If change Table of contents, Table of Contents name updates in courseware title and title bar of Instructor menu without having to exit and reenter software.
- Introductory and Intermediate Algebra student courseware link and Online Grade link no longer touch at resolution 1600 x 900 on Instructor menu.
- Statistics Only – Added warning if client table of contents and server table of contents do not match when click on Lesson Editor and WebTest links on Instructor menu.