Acceptance testing

* System generates set of 2 equations with two variables (2 x 3 matrix)
* Student can access the question page
  + Home controller is called upon to generate question page when student clicks the question link
* Student can create matrix with provided prompt box
* Student can fill in generated matrix
* Student can submit question for grading
  + When question is submitted answers will be extracted by the home controller
* System will grade question
  + Grade checker component will take the answers passed in parameters from the home controller
* System will return results of question
  + Results will be passed from the grade checker as correct or incorrect strings, the home controller will take these returned results and generate it on the question page
* Student can access student home
  + Student can enter url and the home page will be populated by the home controller

Integration testing

* When home url is entered student home will be displayed
  + Will be populated by the home controller
* When student clicks a HW link the home controller will be accessed to generate system of equations
  + The home controller will populate the system of equations in a div
* When student submits answer home controller will get called to grade the question
  + Home controller will take the solution column from the entered question/answer final matrix and pass these numbers into the grade checking component

Unit testing

* Matrix generation
  + Generate a 2 by 3 matrix
    - Generated text box(es) in which the student can enter the coefficients
  + Ensure that there are no free variables in the matrix
  + Generate a solution for a 2 x 3 matrix
    - The matrix generation will use a specific algorithm to create the solution and put these solutions in a key
  + Generate a 2 x 3 matrix based on the solution
    - The matrix generation component will create the matrix, coefficients and all in a div
* User Interface
  + Student can enter the home url to access home page
    - When home url is entered the page will populate from the home controller
  + Student can click a link to access question page
    - The home controller will generate the system of equations to solve
  + User can create a matrix to input coefficients into it
    - The home controller will create a div that allows the user to input their matrix
  + User can submit the problem for grading
    - The home controller will take the matrix entered in the text in the div and take the solutions, passing them to the grade checking component
* Grade Checker
  + Takes solutions from controller that was extracted or converted from the submitted question
    - The solutions will be passed to the grade checker through two parameters representing the user’s proposed solutions
  + Checks against a key with actual solution
    - The solutions passed as the user’s solutions will be compared with a file in which the problem’s solutions are stored via comparison operators
  + Returns correct if all solutions are correct, incorrect otherwise
    - The correct or incorrect confirmation will be returned as a string to the home controller