## APCS CW 4-9 (Multiplication Table)Name:

- 1. Let grid be a 2D array of String.
  - (a) What java statement would you use to find the number of rows in grid?
  - (b) What java statement would you use to fin the number of columns in grid?
  - (c) What java statement would you use to get the String stored in the third row of the first column of grid?
- 2. Let board be a 2D array of boolean.
  - (a) What Java code snippet would declare board?

(b) What Java code would initialize board so that all elements are true?

(c) Recall on homework problem #15 (from November 15, 2023) you made checkerboard pattern by adding the row index and column index and if the sum is even, the color of the square is dark; if the sum is odd, the square is light. Change board so that it follows the same "checker board" pattern, only set it to false or true instead of dark or light.

- 3. Make the class MultiplicationTable which has the following:
  - (a) A single instance variable called table that will contain any desired number of rows and columns of int
  - (b) A constructor that takes two parameters that specify how many rows and columns that the table should have. (Remember, in general, the constructor should initialize any and all instance variables). Initialize table so that each element contains the product of its row index and its column index. For example, the entry at row 3, column 4 should contain 12, because  $3 \times 4 = 12$ .
  - (c) A method that returns the number of rows in the table
  - (d) A method that returns the number of columns in the table
  - (e) A toString method (which overrides the default toString method) that returns a String version of the table so that each row is on its own line, and there is a " | " between each column.