4. This question involves a two-dimensional array of integers that represents a collection of randomly generated data. A partial declaration of the `Data` class is shown. You will write two methods of the `Data` class.

```
public class Data
{
   public static final int MAX = /* value not shown */;
   private int[][] grid;

   /** Fills all elements of grid with randomly generated values, as described in part (a)
    *  Precondition: grid is not null.
    *       grid has at least one element.
    */
   public void repopulate()
   {  /* to be implemented in part (a) */  }

   /** Returns the number of columns in grid that are in increasing order, as described
    *  in part (b)
    *  Precondition: grid is not null.
    *       grid has at least one element.
    */
   public int countIncreasingCols()
   {  /* to be implemented in part (b) */  }

   // There may be instance variables, constructors, and methods that are not shown.
}
```

(a) Write the `repopulate` method, which assigns a newly generated random value to each element of `grid`. Each value is computed to meet all of the following criteria, and all valid values must have an equal chance of being generated.

- The value is between 1 and `MAX`, inclusive.
- The value is divisible by 10.
- The value is not divisible by 100.

Complete the `repopulate` method.

```
/** Fills all elements of grid with randomly generated values, as described in part (a)
 *  Precondition: grid is not null.
 *       grid has at least one element.
 */
public void repopulate()
```

Begin your response at the top of a new page in the Free Response booklet and fill in the appropriate circle indicating the question number.
If there are multiple parts to this question, write the part letter with your response.

(b) Write the `countIncreasingCols` method, which returns the number of columns in `grid` that are in increasing order. A column is considered to be in increasing order if the element in each row after the first row is greater than or equal to the element in the previous row. A column with only one row is considered to be in increasing order.

The following examples show the `countIncreasingCols` return values for possible contents of `grid`.

The return value for the following contents of `grid` is `1`, since the first column is in increasing order but the second and third columns are not.

10	50	40
20	40	20
30	50	30

The return value for the following contents of `grid` is `2`, since the first and third columns are in increasing order but the second and fourth columns are not.

10	540	440	440
220	450	440	190

Complete the `countIncreasingCols` method.

```
/** Returns the number of columns in grid that are in increasing order, as described
 *  in part (b)
 *  Precondition: grid is not null.
 *       grid has at least one element.
 */
public int countIncreasingCols()
```

Begin your response at the top of a new page in the Free Response booklet and fill in the appropriate circle indicating the question number.
If there are multiple parts to this question, write the part letter with your response.

Class information for this question

```
public class Data

public static final int MAX = /* value not shown */
private int[][] grid

public void repopulate()
public int countIncreasingCols()
```

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