

## Test Plan – RSA Numbers

When writing a test plan, the necessary cases to test will vary by problem.

As a starting point, write a test plan that looks for:

- the typical cases for the problem given
  - for example, test the example cases given in the problem specification
- the boundary conditions on all input values
  - for example, when valid inputs ranges between 1 and 10, be sure to...
    - test inputs of 1 and 10 (these should be accepted)
    - test inputs 0 and 11 (these should be rejected)

(a common programming error is to use  $>$  or  $<$  when testing a range of numbers, when  $\geq$  or  $\leq$  should have been used instead)

- invalid inputs
  - for example, if a problem accepts integers as input, be sure to...
    - test string input (this should be rejected)
    - test real numbers, such as 2.3, as input (this should be rejected)

For a given case, show the input sequence, then list the precise expected output.

Test Cases		
Description	Input & Expected Output	Score
Typical case <ul style="list-style-type: none"><li>• Prompts exactly as shown</li><li>• Output message exactly as shown</li><li>• Accurate count of RSA numbers in range shown</li></ul>	Enter the lower limit of range 1 Enter the upper limit of range 10 The number of RSA numbers between 1 and 10 is 3	0 1 2 3

Test Cases		
Description	Input & Expected Output	Score
Typical case <ul style="list-style-type: none"> <li>• Widest possible range of numbers</li> <li>• Accurate count of RSA numbers in range shown</li> </ul>	Enter the lower limit of range 1 Enter the upper limit of range 1000 The number of RSA numbers between 1 and 1000 is 292	0 1
Boundary condition <ul style="list-style-type: none"> <li>• 1000 is accepted for upper limit</li> <li>• Accurate count of RSA numbers in range shown</li> </ul>	Enter the lower limit of range 1000 Enter the upper limit of range 1000 The number of RSA numbers between 1000 and 1000 is 0	0 1 2
Boundary condition <ul style="list-style-type: none"> <li>• 1 is accepted for lower limit</li> <li>• Accurate count of RSA numbers in range shown</li> </ul>	Enter the lower limit of range 1 Enter the upper limit of range 1 The number of RSA numbers between 1 and 1 is 0	0 1 2
Invalid input <ul style="list-style-type: none"> <li>• 1001 or greater is rejected</li> <li>• Prompt is repeated as shown</li> <li>• Accurate count of RSA numbers in range shown</li> </ul>	Enter the lower limit of range 990 Enter the upper limit of range 1001 Enter the upper limit of range 1002 Enter the upper limit of range 1000 The number of RSA numbers between 990 and 1000 is 3	0 1 2 3
Invalid input <ul style="list-style-type: none"> <li>• 0 or lower is rejected for lower limit</li> <li>• Prompt is repeated as shown</li> <li>• Accurate count of RSA numbers in range shown</li> </ul>	Enter the lower limit of range 0 Enter the lower limit of range -1 Enter the lower limit of range 1 Enter the upper limit of range 20 The number of RSA numbers between 1 and 20 is 5	0 1 2 3

Test Cases		
Description	Input & Expected Output	Score
Invalid input <ul style="list-style-type: none"> <li>• Invalid inputs rejected</li> <li>• Prompt is repeated as shown</li> <li>• Accurate count of RSA numbers in range shown</li> </ul>	<pre> Enter the lower limit of range bananas Enter the lower limit of range  Enter the lower limit of range 50.1 Enter the lower limit of range 50 Enter the upper limit of range bananas Enter the upper limit of range  Enter the upper limit of range 50.1 Enter the upper limit of range 100 The number of RSA numbers between 50 and 100 is 17           </pre>	0 1 2 3 4 5 6

Final score

**out of**

**20**