

CSE 121: Section 5 - Nested For-Loops, Random, Math

1. Math Tracing

Trace through the code below to determine the value of each variable at each of the given points. Point A has been completed for you.

```
int var1 = 20;
double var2 = 19.25;
// Point A

var1 = (int) Math.round(var2);
var2 = Math.ceil(var2);
// Point B

var1 -= 18;
var2 -= (var1 * 4);
var1 = (int) Math.sqrt(var2);
// Point C

var1 *= -4;
var2 /= 4;
var2 = Math.abs(var2 * var1);
var1 = (int) var2;
var2--;
// Point D
```

Point A	var1	20
	var2	19.25
Point B	var1	
	var2	
Point C	var1	
	var2	
Point D	var1	
	var2	

2. Random Ranges

For each of the statements below, determine the range of values that *could* be output by the random function call. Write your answer as the lowest and highest possible value (both inclusively). You may assume that the `Random` variable, `rand`, has already been created.

	Minimum Possible Value	Maximum Possible Value
<code>rand.nextInt(10);</code>	_____	_____
<code>rand.nextInt(8) + 3;</code>	_____	_____
<code>rand.nextInt(21);</code>	_____	_____
<code>rand.nextInt(1);</code>	_____	_____
<code>rand.nextInt(3, 9);</code>	_____	_____
<code>rand.nextInt(2, 6) - 4;</code>	_____	_____

3. Entirely Random

Write a program that randomly prints between **0 and 10 lines of output**. On each line of output, there should be between **0 and 10 (decided randomly)** smile emoticons “:-)”.

For example, you might have output like this:

```
:-) :-) :-) :-) :-)
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```

Write your code below. Pay special attention to the bounds of your random number generation. **You should only create a single Random object** in the program.

```
public static void main(String[] args) {
```

```
}
```