Assessment #3 Practice

Multiple Choice - Five questions covering all concepts covered so far!

1. What is printed as a result of executing the following code segment?

```
int k = 0;
while (k < MAX)
{
    k += 4;
}
System.out.println(k);
```

(A) MAX
(B) MAX – 4
(C) MAX + 4
(D) 4
(E) Nothing – the program goes into an infinite loop

2. Consider the following method.

```
public int randomPoints(int n)
{
    return (int) (n * Math.random()) + 1;
}
```

Which of the following outputs is NOT possible when the statement below is executed?

```
System.out.println(randomPoints(3) + randomPoints(3));
```

(A) 2
(B) 3
(C) 4
(D) 6
(E) All of the above are possible

3. What is the output of the following code segment?

```
String name = "DonaldDuck";
int pos = name.indexOf("D", 1);
int pos2 = name.indexOf("al");
int pos3 = name.indexOf("x");
System.out.println(pos + pos2 + pos3);
```

(A) 2
(B) 3
(C) 4
(D) 8
(E) 9

4. Given the declaration

```
int p = 5, q = 3;
```

Which of the following expressions evaluates to 7.5?

~~I.~~ `(double) (p * q / 2);` (double)(5 * 3/2) → (double)(15/2) → (double)(7

✓ II. `(double) p * (double) q / 2;` 5.0 * 3.0/2 → 15.0/2 → 7.5

~~III.~~ `(double) p * (double) (q / 2);` 5.0 * (double)(3/2)
5.0 * (double)(1) → 6.0

(A) I only
(B) II only
(C) I and II only
(D) I, II, and III
(E) None of them

5. Consider the following code segment.

```
int p = 1;
while (p < 5)
{
      int q = 2;
      while (q < 7)
      {
            q += p;
            p++;
            System.out.println(p + " " + q);
      }
}
```

p < 5	q < 7
1 ✓	2 ✓
2 ←	3 ✓
3 ←	5 ✓
4	8 ↵
4 ✓	2 ✓
5 ←	6 ✓
6	11 no!
6 < 5? no!	

prints

2 3
2 3 3 5 4 8
2 3 3 5 4 8 5 6
2 3 3 5 4 8 5 6 6 11

What is the last output when the code segment executes?

(A) 4 5
(B) 4 8
(C) 5 6
(D) 6 10
(E) 6 11

Identifying Outputs of "While" Loops

Track the following code segments to determine what they will print.

For problems 1-3, use the following variable declarations:

```
final int MAX = 32;
int num = 15;
```

1.
```
while (num < MAX)
  {
    num = num++;
    System.out.print(num);
  }
```

Output:

151617181920212223242526 27
2829303132

2.
```
while (num < MAX)
  {
    System.out.println (num);
    num *= 2;
  }
```

num	< 32?
15	✓
30	✓
60	no!

Output:

15
30

3.
```
while (num < MAX)
 {
    if (num%3 == 0)
       System.out.print(num + " ");
    num++;
 }
```

num	< 32?	%3?
15		✓
16		no
17		no
18		✓
⋮		
31		no
32	stop	

Output:

15 18 21 24 27 30

4.
```
int num = 8905;
int rev = 0;
while (num > 0)
{
     rev = rev * 10;
     rev = num % 10 + rev;
     num = num / 10;
}

     System.out.println(rev);
```

Output:

num	rev	
8905	0	0*10
	0	8905 %10 +0
8905/10	5	
890	5	5*10
	50	890%10 + 50
890/10	50	
89		
89	50	50*10
	500	89%10 +500
89/10	509	
8	509	509*10
	5090	8%10 +5090
8/10 → 0	5098	

5.

```
int num = 5;
int dum = 4;

while (num > 4 && dum < 10)
{
        num++;
        dum = num;
}

System.out.print(num + "-" + dum);
```

num > 4 ✓ | dum < 10

5 ✓ | 4 ✓
6 ✓ | 6 ✓
7 | 7
8 | 8
9 | 9
10 ✓ | 10 no!

Output: 10 - 10

6.

```
boolean finished = false;
int num = 0;
while (!finished) {
      num += 1;
      if (num % 5 == 0)
            finished = true;
      num += 201;
}
      System.out.println(num);
```

num	%5==0
0	
1	ϕ
202	
203	ϕ
404	
405	✓ → finished = true
606	stops loop

Output: 606