Java   Name -
nested loop multiple choice worksheet #1   Period -

1. What output will be produced by this code segment? (Ignore spacing.)

```
for (int i = 5; i >= 1; i--)
{
   for (int j = i; j >= 1; j--)
      System.out.print(2 * j - 1);
   System.out.println();
}
```

A.   B.   C.   D.   E.
9 7 5 3 1   9 7 5 3 1   9 7 5 3 1   1   1 3 5 7 9
9 7 5 3   7 5 3 1   7 5 3 1 -1   1 3   1 3 5 7
9 7 5   5 3 1   5 3 1 -1 -3   1 3 5   1 3 5
9 7   3 1   3 1 -1 -3 -5   1 3 5 7   1 3
9   1   1 -1 -3 -5 -7   1 3 5 7 9   1

2. Which of the following code segments will produce this output? (Ignore spacing.)

```
2 - - - - -
- 4 - - - -
- - 6 - - -
- - - 8 - -
- - - - 10 -
- - - - - 12
```

I.
```
for (int i = 1; i <= 6; i++)
{
   for (int k = 1; k <= 6; k++)
      if (k == i)
         System.out.print(2 * k);
      else
         System.out.print("-");
   System.out.println();
}
```

II.
```
for (int i = 1; i <= 6; i++)
{
   for (int k = 1; k <= i - 1; k++)
      System.out.print("-");
   System.out.print(2 * i);
   for (int k = 1; k <= 6 - i; k++)
      System.out.print("-");
   System.out.println();
}
```

III.
```
for (int i = 1; i <= 6; i++)
{
   for (int k = 1; k <= i - 1; k++)
      System.out.print("-");
   System.out.print(2 * i);
   for (int k = i + 1; k <= 6 - i; k++)
      System.out.print("-");
   System.out.println();
```

}

A. I only   D. I and II only
B. II only   E. I, II, and III
C. III only

3. Consider the following code segment.
```
int p = 1;

while (p < 6)
{
    int q = 1;

    while (q < 6)
    {
        q += p;
        p++;
        System.out.println(p + "    " + q);
    }
}
```

What is the last output when the code segment executes?
A. 6   10   B. 6   7   C. 5   9   D. 4   5   E. 3   4

4. Consider the following code segment.
```
int n = 10;
int x = <some integer value greater than 0>
int y = x;
```

Loop 1

```
while (x < n)
{
    x++;
    System.out.println(x);
}
```

Loop 2

```
for (int p = y; p < n; p++)
{
    y++;
    System.out.println(y);
}
```

For which integer values of x will Loop 1 and Loop 2 have the same output?

A. Only whenever x >= 10   D. Only whenever 1 <= x <= 10
B. Only whenever x == 10   E. All values of x
C. Only whenever 1 < x < 10

5. Consider the following code segment.

```
int k = 0;
int m = <some integer value greater than 0>
int n = m;

while (k < n)
{
    k++;
```

```
      n--;
}

System.out.println(k + n);
```

What is output when the segment executes?
A. A value equal to `(m + 1)/2`   D. A value equal to `m + 1`
B. A value equal to `m/2`   E. A value equal to `m`
C. A value equal to `m - 1`

6. Consider the following code segment.

```
int x = 0;
int n = <some integer value greater than 0>;
int y = n;

while (x < y)
{
    if (x % 2 == 0)
        x++;
    else
        y--;
}

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

What is the output when the segment executes?
A. 0   D. An integer value equal to `(n-1)/2`
B. 1   E. An integer value equal to `(n+1)/2`
C. An integer value equal to `n/2`

7. Consider the following code segment.

```
int p = <some integer value greater than 0>
int q = <some integer value greater than p>

while (p < q)
{
    p++;
    while (p < q)
        q--;
}
System.out.println(p + " " + q);
```

What kinds of values are printed when the segment executes?
A. Two positive integers, such that `p` equals `q`
B. Two zeroes
C. Two positive integers, such that `p` is greater than `q`
D. Two positive integers, such that `p` is less than `q`
E. Two positive integers, such that `p` equals `q + 1`

8. Consider the following code segment.

```
int x = <some integer greater than 0>
int n = 0;

if (x < 100)
{
    if (x > 200)
```

```
        n = 1000;
    else
        n = 2000;
}
else
{
    if (x < 50)
        n = 3000;
    else
        n = 2000;
}
System.out.println(n);
```

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

A. Unknown without the value of x   D. 2000
B. 0   E. 3000
C. 1000