

**Question #1:** Trace each of the following code segments

[6pts]

Segment #1	count	i	output (if any)
<pre> int count=7; int i; for (i = 2; i&lt;0; i--); count--; </pre>	7 ✓	2 ✓	
	6 ✓	1	
		0	
Segment #2	count	num	output (if any)
<pre> int num = 5, count = 0; for(num=5; num&gt;0; num-=2) { switch(num)   { case 3: num++; break;     case 2: num = 0;     default:       System.out.println("hi"+num);       num--;     }   count++; } while (num&gt;0); System.out.println("num = "+num); </pre>	0 ✓	5 ✓	hi 5 ✓
	1 ✓	4 ✓	
	1	2 ✓	
	1	0 ✓	hi 0 ✓
	2 ✓	-1 ✓	
		-3 ✓	num = -3 ✓
Segment #3	n	i	output (if any)
<pre> int n = 0; int i = 0; while (n&lt;=6) { for (i = 0; i&lt;2; i++)   { System.out.println("Hello "+i);     n+=2;   }   n+=2; } System.out.println("Hi " + n); </pre>	0 ✓	0 ✓	
	2 ✓	0	Hello 0 ✓
	4 ✓	1 ✓	Hello 1 ✓
	6 ✓	2	
	6	0 X	
	8 ✓	0 X	Hello 0 ✓
	10 ✓	1 ✓	Hello 1 ✓
	12 ✓	2	
	12	0 X	Hi ~ 12 ✓

extra --25  
it + 0 -25

## Question #2: 4 Short questions

[4pts]

1. Consider the code with its line numbers (#). Explain briefly what happens with the for loop when the continue statement on 4# is encountered. And state which statement is executed next?

```
1# int num = 0, i=0;
2# while(i++<5) i = 3
3# { if (i==2)
4#     continue;
5#     num ++;
6# }
7# num += 1;
```

if  $i=2$  the continue skip  
the scanner and do next iteration  
أي أنه سيقفز من هذا المكان الذي فيه  
البيان continue إلى السطر

And state which statement is executed next first  $i=2$  and do post increment

then  $i$  is change to 3 and don't equal 2 so will executed

expression 2. Fill line 3# to make the while loop execute...

3 times	1 time only
1# int x = 0;	1# int x = 0;
2# while (x < 6){	2# while (x < 6){
3# x = <u><math>x+2</math></u> ;	3# x = <u><math>x+6</math></u> ;
4# }	4# }

3. Is this loop an infinite loop? Explain precisely.

```
1# int num = 9;
2# do {
3#     if (num < 9) break;
4#     num ++;
5# } while(true);
```

flag

yes because the boolean flag don't change to false so stopped

the loop also the num always not < 9

4. After this loop,

```
1# Scanner input = new Scanner(System.in);
2# int num;
3# while( num >= 0 ) {
4#     num = input.nextInt();
5# }
6#
```

when we reach line 6# the value of num can be: (check all that apply)

☒ negative

☐ zero

☐ positive