1. What is the output of this program fragment?

```
int i = 0;
while (i <=5){
    printf("%3d, %3d\n", i, i-10);
    i = i + 1;
}

Answer: 0, -10
    1, -9
    2, -8
    3, -7
    4, -6</pre>
```

2. What output values are displayed by the following while loop for a data value of 5? of 6? of 7?

```
printf("Enter an integer>");
    scanf("%d", &x);
    product = x;
    count = 0;
    while(count < 4){
        printf("%d\n", product);
        product *= x;
        count += 1;
    }</pre>
```

```
Answer: on x = 5: 5 ; on x = 6: 6 ; on x = 7: 7 
25 36 49 
125 216 343 
625 1296 2401
```

3. What is the given output of this program fragment given that N = 8?

```
int N, sum = 0;
for( i = 0; i < N; i++){
    sum = sum + 1;
}
    printf("%d \n", sum);</pre>
```

Answer: 8

4. What is the output of this program fragment?

```
int j, i = 10;
for(j=i; j<= 5; ++j){
    printf("%d %d \n", i, j);
    i -= 2;
    }</pre>
```

Answer: Displays "None", because the condition is already false, so the program skip the loop.

5. What is the following program fragment trying to do?

```
do{
    printf("enter a number: ");
    scanf("%d", &num);
} while((num < 0) || (num >= 10));
```

Answer: The program is asking the user to input a number, and the program will ask the user repeatedly for a number if the number given by the user is less than zero or it is more than or equals to ten.

6. What will be the values of n , m, and p after executing the following statements when j = 5 and k = 2?

```
n = j - ++k;

m = j-- + k--;

p = k + j;
```

Answer: n = 2, m = 8, p = 6.

7. What is the output of this program fragment?

```
printf(" i j\n");
for(i=1; i<4; ++i){
    printf("Outer %3d\n",i);
    for(j=0; j<i; ++j){
        printf("Inner %11d\n",j);
        }
    }</pre>
```

Answer: The program will give error because the 'i' and 'j' is not declared as a variable.

8. Complete the definition of the function factorial that computes the factorial of an integer n.

```
int factorial(int n){
```

}