① 1
2 2
3 3 3

print i

```
for (i=1 ; i<=3; i++)
{ for(j=1; j<=i ; j++)
  { print i
  }
}
```

② 1
1 2
1 2 3

print j

```
for (i=1 ; i<=3 ; i++)
{ for (j=1; j<=i ; j++)
  { print j
  }
}
```

③ i=3 j=3 3
i=3 j=2 2
i=2 j=3 j=2 2
i=2 j=1 1
i=1 j=3 j=2 j=1 1

print i

```
for( i=3; i>=1 ; i--)
  {
   for(j=3 ; j>=i ; j--)
     {
      print i
     }
  }
```

④ 3
3 2
3 2 1

print j

```
for (i=3 ; i>=1 ; i--)
{ for (j=3 ; j>=i ; j--)
  { print j;
  }
}
```

⑤ 1
2 3
4 5 6

print count
Floyd's Δ

```
for (i=1 ; i<=3 ;i++)
{ for (j=3; for j>=i ; j--)
  { printf ("%d", i);
  }
  printf ("\n");
}
for (i=1 ; i<=3 ;i++)
{ for (j=3; j>=i ;j--)
  { printf ("%d", j);
  }
  printf("\n");
}
for (i=3 ; i>=1 ; i--)
{ for (j=1 ; j<=i ; j++)
  { printf ("%d", i);
  }
  printf("\n");
}
for (i=3; i>=1; i--)
{ for (j=1 ; j<=i ; j++)
  { printf ("%d", j);
  }
  printf("\n");
}
```

⑥ 1 1 1
2 2
3

print i

⑦ 3 2 1
3 2
3

print j

⑧ 3 3 3
2 2
1

print i

⑨ 1 2 3
1 2
1

print j

(10)
```
3 2 1
2 1
1
```
$j = i$

```
for (i=3 ; i>=1 ; i--)
{ for (j=i ; j>=1 ; j--)
  { print (j)
  }
  print ("\n")
}
```

(11)
```
1
2 1
3 2 1
```
$j = i$

same

```
for (i=1 ; i<=3 ; i++)
{ for (j=i ; j>=1 ; j--)
  { print (j)
  }
  print ("\n")
}
```

(12)
```
5 4 3 2 1
4 3 2 1
3 2 1
2 1
1
```

```
for (i=5 ; i>=1 ; i--)
{
  for (j=i ; j>=1 ; j--)
  { print (j)
  }
}
```

(13)

		space
i=1	_ _ _ 1	n-i=3
i=2	_ _ 1 3	n-i=2
i=3	_ 1 3 5	n-i=1
i=4	1 3 5 7	n-i=0

```
for (i=1; i<=4 ; i++)
{ for (sp=n-i ; sp>=1 ; sp--)
  { print space
  }
  for (pt=1 ; pt<=i ; pt++)
  {
    sum=1;
    print sum
    sum+=2;
  }
  print \n
}
```

n=4

	pt=1	pt=2	pt=3	pt=4
i=1	1			
i=2	1	3		
i=3	1	3	5	
i=4	1	3	5	7

(12)
```
5
4   4
3   3   3
2   2   2   2
1   1   1   1   1
```
print i°
same as 3

(13)
```
5
5   4
5   4   3
5   4   3   2
5   4   3   2   1
```
same as 12
print j°
same as 4

```
for (i=1 ; i<=3 ; i++)
{
  for (sp=3-i° ; sp>=1 ; sp--)
    { printf (" ");
  for (pt=2i°-1 ; pt>=1 ; pt--)
    { printf ("*");
    }
  printf ("\n");
}
```

(14)
```
    *
  * * *
* * * * *
```
Pyramid Pattern

(15)
```
* * * * *
  * * *
    *
```
Reverse Pyramid Pattern

```
for (i°=3 ; i°>=1 ; i°--)
{
  for (sp=3-i° ; sp>0 ; sp++)
    { pf (" ");
    }
  for (pt=2i°-1 ; pt>=1 ; pt--)
    { printf ("*");
    }
  printf ("\n");
}
```

(16)
```
    *
  * *
* * *
```

```
for (i=1 ; i<=n ; i++)
{
  for (sp=n-i° ; sp>=1 ; sp--)
    { printf ("\t");
    }
  for (pt=1 ; pt<=i ; pt++)
    { printf ("%d *");
    }
  printf ("\n");
}
```

ASCII Values of A-Z = 65 to 90
ASCII Values of a-z = 97 to 122

```
A
A B
A B C
A B C D
A B C D E
```

```
#include<stdio.h>
main()
{
int i, j;
for(i=1; i<=5; i++)
    { for (j=1; j<=i; j++)
        { printf ("%c", 'A' + j-1);
        }
      printf("\n");
    }
}
```

```
A
B B
C C C
D D D D
E E E E E
```

```
for (i=1; i<=5; i++)
    { for (j=1; j<=i; j++)
        { printf("%c", 'A' - 1 + i);
        }
      printf("\n");
    }
```