1. How can you generate a **floating** random number whose value is between 5.0 and 10.0 ?

   5.0*rand()/RAND_MAX + 5

2. Write a C code to compute

$$\frac{1}{1^2} + \frac{1}{5^2} + \frac{1}{9^2} + \frac{1}{13^2} + \ldots + \frac{1}{101^2}.$$

   float sum=0; int i; for (i=0;i<=25;i++) sum=sum+1/pow(4*i+1,2);

3. What does the following program output ?

```
#include <stdio.h>
int f(int n)
{
 if (n==1) return 0;
 if (n==2) return 1;
 return f(n-1)+ 2*f(n-2);
}
int main()
{
 printf("%d\n", f(6));
 return 0;
}
```

   11

4. What does the following program output ?

```
#include <stdio.h>

int main()
{
 int i, j;
 int a=0;
  for (i=0;i<3;i++)
   for (j=0;j<2;j++)
       a+=2*i+j-1;
 printf("%d\n", a);
 return 0;
}
```

   9

5. What does the following program output ?

```
#include <stdio.h>
int main()
{
 float x=1, y=2;
 int i;
 for (i=0;i<3;i++)
   {x = -y+2.0*x;
    y = 2.0*y-1.0;
   }
 printf("%f\n", x);
 return 0;
}
```

   -11.0

6. Write a **`printf`** statement (one line) to print the following:

```
"\n" represents a blank line.
```

printf("\"\\n\" represents a blank line.");

7. Cite an example of C function that requires a pointer as an argument.

8. Compute the determinant of

$$\begin{vmatrix} 2 & 1 & 3 \\ 4 & 5 & 4 \\ 3 & 1 & 5 \end{vmatrix}$$

```
1
```

9. What value does the following program output ?

```
#include <stdio.h>

void func(int i, float *a)
{
*(a+i)=2.0**(a+i)+1;
}

int main()
{
float b[]={-4.0, 2.1, 8.7, 11.2};
func(2, b);
printf("%f\n", b[2]);
return 0;
}
```

18.4

10. If an integer in a C compiler is represented by 2 bytes (=16 bits), what is the maximum integer number C can handle ? You need to consider a sign (±).

$$2^{15} - 1 = 32767$$