

1441	CS 205	كلية الهندسة
الفصل الدراسي الأول	YEES1	هندسة كهربائية
اختبار نهائي تيرم اول	Full Mark: 40 Points	برمجة الحاسب
الرقم الجامعي		اسم الطالب

1. Trace and display the print out <pre> #include <stdio.h> #include <stdlib.h> main() { int i,j,x=0; for(i = 0;i<5;++i) for(j=0;j<i;++j) { x += (i+j-1); printf("%d",x); break; } printf("\nx=%d",x); } </pre>	0136 X = 6
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1. Write a **C program** that can calculate the **triangle area** given the **lengths of the three sides**

Note: **Area** = $\sqrt{s * (s - A) * (s - B) * (s - C)}$

Where

s: half of perimeter

A, B, C: triangle side length

side 1: 12

side 2: 5

side 3: 13

Area = 30.0

2. Write a program that uses looping to print the following table of values. Use the tab escape sequence, `\t`, in the `printf()` statement to separate the columns with tabs

N	10*N	100*N	1000*N
1	10	100	1000
2	20	200	2000
3	30	300	3000
4	40	400	4000
5	50	500	5000
6	60	600	6000
7	70	700	7000
8	80	800	8000
9	90	900	9000
10	100	1000	10000

```
#include <stdio.h>
#include <stdlib.h>
main()
{
    int i,n = 1;
    printf("\nN\t10*N\t100*N\t1000*N");
    for(i=1;i<=10;i++)
    {
        printf("\n%d\t%d\t%d\t%d",i,i*10,i*100,i*1000);
    }
    getch();
}
```

3. Write a program that estimates the value of the mathematical constant **e** by using the formula:

$$e = 1 + \frac{1}{1!} + \frac{1}{2!} + \frac{1}{3!} + \dots + \frac{1}{n!}$$

```
#include <stdio.h>
#include <stdlib.h>
main()
{
    int i,n;
    float t=1, e = 1;
    printf("\nNumber of terms: ");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        t = t*i;
        e = e+1/t;
    }
    printf("approximated e :%f",e);
    getch();
}
```

4. Write a C program to read 50 numbers entered by user. The program should print out the **count of numbers that are above or equal to the average**

```
#include <stdio.h>
#include <stdlib.h>
main()
{
    float x[100],sum=0,av;
    int i,n,naa=0;
    printf("\n# Numbers: ");
    scanf("%d",&n);
    for(i=0;i<n;i++)
    {
        printf("\nNumber %d: ",i+1);
        scanf("%f",&x[i]);
        sum = sum +x[i];
    }
    av = sum/n;
    for(i=0;i<n;i++)
    {
        if(x[i]>av)
            naa++;
    }
    printf("\nNumber above or equal to %f is:%d ",av,naa);
}
```