

1. Enter this program and compile it. What does it do?

```
#include <stdio.h>
int radius, area;
int main (void){
    printf ("Enter radius ");
    scanf ("%d", &radius);
    area = (int) (3.14159 * radius * radius);
    printf ("\n\nArea = %d\n", area);
    return 0;
}
```

2. Enter this program and compile it. What does it do?

```
#include <stdio.h>
int x, y;
int main (void){
    for (x = 0; x < 10; x++, printf ("\n"))
        for (y = 0; y < 10; y++)
            printf ("X");
    return 0;
}
```

3. The following program has a problem. Find it.

```
#include <stdio.h>
int main( void );
{
    printf( "Keep looking!" );
    printf( "You will find it!\n" );
    return 0;
}
```

4. The following program has a problem. Find it.

```
#include <stdio.h>
int main( void )
{
    printf( "This is a program with a " );
    do_it( "problem!");
    return 0;
}
```

5. Make the following change to the program in exercise 2. What does it do now?

```
printf( "X" ); → printf( "%c", 88 );
```

6. Enter this program and compile it. What does it do?

```
#include <stdio.h>
int main(void)
{
    int ctr;
    for( ctr = 65; ctr < 91; ctr++ )
        printf("%c", ctr );
    return 0;
}
```

7. Find the error(s) in the following code:

```
printf( "Frosty said, "Hello!"");
```

8. Write a program that inputs two floating-point values from the keyboard and displays their product.

9. Write a program that prompts for one integer value and then one floating-point value from the keyboard and displays their product.

¿What happens if the user inputs the floating-point value first?

10. Write a program that prompts the user for an integer number and outputs that value raised to the power of three.

¿What happens if the user inputs a non integer value?

11. Write a program that prompts the user for two values, store them in variables and, after that, swap their values.

12. Write a program that prompts the user for an integer number and shows previous and following numbers.

13. Write a program that prompts the user for his initials (one at a time) and shows them in the format X.Y.Z.

14. Write an if statement that assigns the value of x to the variable y only if x is between 1 and 20. Leave y unchanged if x is not in that range.

15. Use the conditional operator to perform the same task as in exercise 1.

16. Rewrite the following nested if statements using a single if statement and compound operators.

```
if ( x < 1 )  
    if ( x > 10 )  
        ...;
```

17. What is the result of evaluating the following expressions?

- a.  $(1 + 2 * 3)$
- b.  $10 \% 3 * 3 - (1 + 2)$
- c.  $((1 + 2) * 3)$
- d.  $(5 == 5)$
- e.  $(x = 5)$

18. If  $x = 4$ ,  $y = 6$ , and  $z = 2$ , determine whether each of the following evaluates to true or false.

- a. `if ( x == 4 )`
- b. `if ( x != y - z )`
- c. `if ( z = 1 )`

d. `if(y)`

19. Write an if statement that determines whether someone is legally an adult (age 18), but not senior yet (age 65).

20. What is the value of x when the following statement is complete?

```
for (x = 0; x < 100; x++) ;
```

21. What is the value of ctr when the following statement is complete?

```
for (ctr = 2; ctr < 10; ctr += 3) ;
```

22. How many Xs does the following print?

```
for (x = 0; x < 10; x++)
    for (y = 5; y > 0; y--)
        puts("X");
```

23. Write a for loop to display from 1 to 100 by 3 on screen, starting from 1.

24. Write a while oop to display from 1 to 100 by 3 on screen, starting from 1.

25. Write a do...while oop to display from 1 to 100 by 3 on screen, starting from 1.

26. What is wrong with the following code fragment?

```
int record = 0;
while (record < 100)
{
    printf( "\nRecord %d ", record );
    printf( "\nGetting next number..." );
}
```

27. What is wrong with the following code fragment?

```
#define MAXVAL 50
for (counter = 1; counter < MAXVAL; counter++);
    printf("\nCounter = %d", counter );
```

28. Is anything wrong with the following code?

```
switch( answer )
{
    case `Y': printf("You answered yes");
              break;
    case `N': printf( "You answered no");
}
}
```

29. Is anything wrong with the following code?

```
switch( choice )
{
    default:
        printf("You did not choose 1 or 2");
}
```

```

    case 1:
        printf("You answered 1");
        break;
    case 2:
        printf( "You answered 2");
        break;
}

```

30. Write a program that provides a menu with three different options. The third option should quit the program. Each of the other options should execute a system command using the `system()` function.

31. Escribe un programa que te pida tu nota en números [0-10] y te muestre tu calificación con letras: D [0,5), C [5,7), B [7,9), A [9,10]. Si se introduce un valor no válido, debe seguir preguntando.

### EXTRA

1. Pide un carácter por teclado y comprueba si es una vocal mayúscula o no.
2. Pide un carácter por teclado y comprueba si está en mayúsculas.
3. Pide un número por teclado y comprueba si es múltiplo de 5.
4. Pide un año por teclado y comprueba si es bisiesto o no. (Bisiesto: múltiplo de 4, excepto los que son múltiplos de 100 pero no de 400).
6. Pide tres números por el teclado y muestra el mayor de ellos.
7. Escribe un programa que te permita sumar tantos números como quieras. La cantidad de números a sumar la decide el usuario en cada ejecución. Utiliza un bucle `for`.
8. Idem que 7 pero con un bucle `while`.
9. Idem que 7 pero con un bucle `do-while`.
10. Pide número enteros positivos constantemente y muestra el resultado de su suma. Si te dan un negativo, lo ignoras. Para terminar el programa, introduce 0. Utiliza un bucle infinito, `continue` y `break`.
11. Escribe un programa que muestre por pantalla diez líneas con los 15 primeros múltiplos de los 10 primeros números (1...10). En cada línea deberá mostrar los múltiplos enteros de ese número de línea que no sean múltiplos de 5; los múltiplos de 5 se mostrarán como --. Si en alguna línea se alcanza o supera el valor 50, se dará por terminada la línea.

12. Pide (y exige que sea así) un número entero estrictamente positivo. El programa mostrará cuántas cifras tiene (ej: 3120 → 4).

13. Muestra una lista de los factoriales de los X primeros números. X lo elige el usuario en cada ejecución y ha de ser un número entero estrictamente positivo.

Nota: factorial de un número n es  $n! = n * (n-1) * (n-2) * \dots * 1$ .

Ejemplo:  $6! = 6 * 5 * 4 * 3 * 2 * 1 = 720$

14. Escribe un programa que lea un número entero positivo menor que 100 e indique si es par o impar.

15. Escribe un programa que permita visualizar en pantalla los divisores de un número dado.