

## **SOLUTIONS**

### **FOR LOOP**

Q1

```
#include <stdio.h>

int main() {
    int num, sum = 0;
    printf("Enter a number: ");
    scanf("%d", &num);

    for(; num > 0; num /= 10) {
        sum += num % 10;
    }
    printf("Sum of digits = %d", sum);
    return 0;
}
```

### **NESTED FOR LOOP**

Q2

```
#include <stdio.h>

int main() {
    int n = 5;
    for(int i = 1; i <= n; i++) {
        // print spaces
        for(int j = i; j < n; j++) {
            printf(" ");
        }
        // print stars
        for(int k = 1; k <= i; k++) {
            printf("* ");
        }
    }
}
```

```
    }
    printf("\n");
}
return 0;
}
```

Q3

```
#include <stdio.h>

int main() {
    int n;
    printf("Enter a number: ");
    scanf("%d", &n);

    printf("Factor pairs of %d:\n", n);
    for(int i = 1; i <= n; i++) {
        for(int j = 1; j <= n; j++) {
            if(i * j == n)
                printf("(%d, %d) ", i, j);
        }
    }
    return 0;
}
```

## WHILE LOOP

Q1

```
#include <stdio.h>

int main() {
    int i = 1;
    while(i <= 20) {
        if(i % 2 != 0)
            printf("%d ", i);
    }
}
```

```
i++;  
}  
return 0;  
}
```

## NESTED WHILE LOOP

Q1

```
#include <stdio.h>  
  
int main() {  
    int i = 1;  
    char ch = 'A';  
    while(i <= 5) {  
        int j = 1;  
        while(j <= i) {  
            printf("%c ", ch);  
            j++;  
        }  
        ch++;  
        printf("\n");  
        i++;  
    }  
    return 0;  
}
```

## DO WHILE LOOP

Q1

```
#include <stdio.h>  
  
int main() {  
    int num;  
    do {  
        printf("Enter a number (0 to stop): ");
```

```
    scanf("%d", &num);
} while(num != 0);
printf("Loop ended!");
return 0;
}
```

## NESTED DO WHILE LOOP

Q1

```
#include <stdio.h>

int main() {
    int i = 0;
    do {
        int j = 0;
        do {
            int k = 0;
            do {
                if(i + j + k == 9)
                    printf("%d%d%d ", i, j, k);
                k++;
            } while(k <= 9);
            j++;
        } while(j <= 9);
        i++;
    } while(i <= 9);
    return 0;
}
```