Task-1

● Given the sequence: 1, 4, 9, 16, 25, what is the next number in the sequence?

● The clock shows the time as 3:30. What is the angle between the hour hand and the minute hand?

● Find the missing term in the series: 2, 6, 12, 20, __, 42.

● Given the sequence: 1, 4, 9, 16, 25, what is the next number in the sequence?

○ A) 30

○ B) 36

○ C) 49

○ D) 64

● If the day after tomorrow is a Wednesday, what day was it three days before the day before yesterday?

❖ Write a function that checks if a given string is a palindrome. A palindrome is a string that reads the same forward and backward (e.g., "madam", "racecar").

❖ Write a function that takes an input number and print all the even and odd numbers separately from zero to that input number.

❖ Write a code to check that the word contains any vowels then return true of false.

❖ Write a function that returns factorial of the given number.

❖ Write a function that takes an array of integers: [2, 4, 6, 8].

To find the sum of all the elements in the array?

1.

 the given sequence is:

1, 4, 9, 16, 25

6 *6=36


2. The absolute difference between the positions of the hour and minute hands is |180−105|=75|180 - 105| = 75|180−105|=75 degrees.


3. The missing term in the series is **30**.

4.10+20=30

5. The next number in the sequence is **B) 36**.

6. Wednesday

7. #include <stdio.h>

#include <ctype.h>


```c
int main() {

    char str[100];

    int start = 0, end = 0;

    int isPalindrome = 1;


    printf("Enter a string: ");

    fgets(str, sizeof(str), stdin);


    while (str[end] != '\0') {

        end++;
```

```c
    }
    end--; // Adjust for the null terminator

    while (start < end) {
        while (start < end && !isalnum(str[start])) {
            start++;
        }
        while (start < end && !isalnum(str[end])) {
            end--;
        }
        if (tolower(str[start]) != tolower(str[end])) {
            isPalindrome = 0;
            break;
        }
        start++;
        end--;
    }

    if (isPalindrome) {
        printf("\"%s\" is a palindrome.\n", str);
    } else {
        printf("\"%s\" is not a palindrome.\n", str);
    }

    return 0;
```

}

8, ❖ Write a function that takes an input number and print all the

even and odd numbers separately from zero to that input

number.

```c
#include <stdio.h>

void printNumbers(int max) {
    printf("Even numbers from 0 to %d:\n", max);
    for (int i = 0; i <= max; i++) {
        if (i % 2 == 0) {
            printf("%d ", i);
        }
    }
    printf("\n");

    printf("Odd numbers from 0 to %d:\n", max);
    for (int i = 0; i <= max; i++) {
        if (i % 2 != 0) {
            printf("%d ", i);
        }
    }
    printf("\n");
}

int main() {
```

```c
    int num;

    printf("Enter a number: ");

    scanf("%d", &num);

    printNumbers(num);

    return 0;

}
```

9, 
```c
#include <stdio.h>

#include <ctype.h>


int has_vowel(const char *word) {

    while (*word) {

        char ch = tolower(*word);

        if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') {

            return 1; // Contains a vowel

        }

        word++;

    }

    return 0; // No vowels found

}


int main() {

    char word[100];


    printf("Enter a word: ");
```

```c
    scanf("%s", word);

    if (has_vowel(word)) {
        printf("The word contains a vowel.\n");
    } else {
        printf("The word does not contain a vowel.\n");
    }

    return 0;
}
```

10.
```c
#include <stdio.h>

unsigned long long factorial(int n) {
    if (n == 0 || n == 1) {
        return 1; // Base case: factorial of 0 and 1 is 1
    }
    return n * factorial(n - 1); // Recursive case
}

int main() {
    int num;

    printf("Enter a number: ");
    scanf("%d", &num);
```

```c
        if (num < 0) {

            printf("Factorial is not defined for negative numbers.\n");

        } else {

            printf("Factorial of %d is %llu.\n", num, factorial(num));

        }


        return 0;

}
```

11, 
```c
#include <stdio.h>


// Function to print elements of the array

void print_array(const int arr[], int size) {

    printf("Array elements are:\n");

    for (int i = 0; i < size; i++) {

        printf("%d ", arr[i]);

    }

    printf("\n");

}


int main() {

    int numbers[] = {2, 4, 6, 8}; // Array of integers

    int size = sizeof(numbers) / sizeof(numbers[0]); // Calculate number of elements in the array


    print_array(numbers, size); // Call the function to print the array
```

```
    return 0;

}
```