Homework 1

- Given a number. Using only %2 how to know if the number is even or odd?
- Given a number. Using only %10 how to know if the number is even or odd?
- Given a number. Using only /2 how to know if the number is even or odd?

```cpp
#include <iostream>

using namespace std;

int main()
{
    int num;
    cout << "Enter a number: ";
    cin >> num;

    if (num % 2 == 0) {
        cout << "Even" << endl;
    } else {
        cout << "Odd" << endl;
    }

    return 0;
}
```

Homework 2

- Write a program that reads 5 numbers and print the following:
  - A) Their average
  - B) The sum of the first 3 numbers divided by the sum of the last 2 numbers
  - C) The average of the first 3 numbers divided by the average of the last 2 numbers.
  - What is the math relation between B and C?
  - Any relation between A and C?
- Input 1 2 3 4 5
  - 3
  - 0.666666667
  - 0.444444444

```cpp
#include <iostream>

using namespace std;

int main()
{
    int x , y , z , a , b ;
    cout << "Enter 5 numbers: ";
    cin >> x >> y >> z >> a >> b ;

    double sum1 = x + y + z;
    double sum2 = a + b;
    double avg1 = sum1 / 3;
    double avg2 = sum2 / 2;

    cout << "Average: " << (sum1 + sum2) / 5 << endl;
    cout << "Sum of first 3 / Sum of last 2: " << sum1 / sum2 << endl;
    cout << "Average of first 3 / Average of last 2: " << avg1 / avg2 << endl;

    return 0;
}
```

Homework 3

- Write a program that reads an integer and print the sum of its last 3 digits.
- Inputs
  - 15 => 6
  - 125 => 8
  - 1000 => 0
  - 1001 => 1
  - 1234 => 9
  - 99999 => 27

```cpp
#include<iostream>

using namespace std;

int main()
{
    int num;
    cout << "Enter a number: ";
    cin >> num;

    int digit1 = num % 10;
    int digit2 = (num / 10) % 10;
    int digit3 = (num / 100) % 10;

    cout << "Sum of last 3 digits: " << digit1 + digit2 + digit3 << endl;

    return 0;
}
```

Homework 4

- Write a program that reads an integer and print the 4th from the right side. If no such digit, print 0
- Inputs
  - 15 => 0
  - 125 => 0
  - 1000 => 1
  - 5001 => 5
  - 1234 => 1
  - 654321 => 4
  - 99999 => 9

```cpp
#include<iostream>

using namespace std;

int main()
{
    int num;
    cout << "Enter a number: ";
    cin >> num;

    int digit4 = (num / 1000) % 10;
    cout << "4th digit from right: " << digit4 << endl;

    return 0;
}
```

Homework 5

- Write a program that reads 2 numbers a, b and divide them (a/b), but prints only the fraction part
- E.g. for inputs 201 and 25, print 0.04
  - Notice: 201 / 25 = 8.04
  - We only want the fraction part: 0.04

```
#include<iostream>

using namespace std;

int main()
{
    double a, b;
    cout << "Enter two numbers: ";
    cin >> a >> b;

    double result = a / b;
    double fraction = result - int result;

    cout << "Fraction part: " << fraction << endl;

    return 0;
}
```

Homework 6

- We know N % M computes the remainder of division
- Write a program that reads 2 integers and print such reminder without using the modulus operator %
- E.g. for inputs 27 and 12 ⇒ output 3
  - Remember in math: 27 % 12 = 3

```cpp
#include <iostream>

using namespace std;

int main()
{
    int a, b;
    cout << "Enter two numbers: ";
    cin >> a >> b;

    int remainder = a - (a / b) * b;
    cout << "Remainder: " << remainder << endl;

    return 0;
}
```

Homework 7

- Write a program that reads an integer and print 100 if number is even or 7 if number is odd
  - E.g. for input 8 ⇒ 100
  - E.g. for input 133 ⇒ 7
- Note: if you know if conditions, don't use them.

```cpp
#include <iostream>

using namespace std;

int main()
{
    int num;
    cout << "Enter a number: ";
    cin >> num;

    int result = (num % 2 == 0) ? 100 : 7;
    cout << result << endl;

    return 0;
}
```

Homework 8

- Assume a year has 12 months, but each month is 30 days
  - That is a year has 12 * 30= 360 days
- Read an integer: whole number of days of someone age. Print 3 numbers
  - Total years total months days
- Inputs ⇒ Outputs
  - 360 1 0 0 each 360 days a year
  - 30 0 1 0 each 30 days a month
  - 10 0 0 10 just days infant!
  - 391 1 1 1 391 = 360 + 30 + 1 = 1 year, 1 month, 1 day
  - 61 0 2 1 61 = 2*30 + 1
  - 200 0 6 20 200 = 30*6 + 20
  - 1000 2 9 10 1000 = 2*360 + 9*30 + 10
  - 5000 13 10 20

```cpp
#include <iostream>

using namespace std;

int main()
{
    int days;
    cout << "Enter number of days: ";
    cin >> days;

    int years = days / 360;
    int months = (days % 360) / 30;
    int remainingDays = (days % 360) % 30;

    cout << years << " years, " << months << " months, " << remainingDays
    << " days" << endl;

    return 0;
}
```