

1.

a. 4063 is 111111011111 in binary and FDF in hexadecimal.

b. Machine Language is the binary 0s and 1s that represent electrical currents flowing or not flowing. The computer only knows how to understand Machine Language. Every other language is converted/translated into Machine Language. Assembly is a step up, or a higher order language, that is closely related to Machine Language, with it being harder to read as every step of every action must be written in order. It, however, must be translated into machine language via an assembler, of which itself is unique to every computer architecture, alongside its instructions. High level languages, such as C, are a step up from Assembly, with it being more human readable and also more allowant for it to be able to be run on different computer architectures, assuming the compiler (the tool that translates the high level language into machine language) is able to function on the architecture (as the compiler has to understand how the bits move on the architecture proper).

c. The editor is what we, the code developer use to write down code in a high level language, like typing C code in CodeBlocks (the editor). The editor is simply just used to type the code, put simply. The Compiler is then, after the developer has finished using the editor, then translates the high level language used in the editor to machine language, the only language that the CPU knows. The CPU then proceeds to execute the machine language that was fed to it by the compiler and do the subsequent calculations.

2.

a. Machine Language.

b. Libraries.

c. The Preprocessor.

3.

The screenshot shows a C++ IDE with a project named 'test.c'. The code in the editor is as follows:

```

1 #include <stdio.h>
2
3 int main(void) {
4     // First program
5     printf("First Program\n");
6     int year;
7
8     printf("Please enter a birthyear for Jane: ");
9     scanf("%d", &year);
10    printf("\nHer name is Jane, \n");
11    printf("\nShe was born in %d\n", year);
12 }
13

```

The output window on the right shows the following text:

```

First Program
Please enter a birthyear for Jane: 1990

Her name is Jane,

She was born in 1990

Process returned 0 (0x0)   execution time : 3.097 s
Press ENTER to continue.

```

The status bar at the bottom indicates the file is in UTF-8 encoding, line 11, column 43, position 259.

4.

The screenshot shows a C++ IDE with a project named 'test.c'. The code in the editor is as follows:

```

1 #include <stdio.h>
2
3 int main(void) {
4     int first, second, third;
5
6     printf("Please enter the first number: ");
7     scanf("%d", &first);
8     printf("Please enter the second number: ");
9     scanf("%d", &second);
10    printf("Please enter the third number: ");
11    scanf("%d", &third);
12
13    int one = first+second;
14    int two = first / third;
15    int three = second * third;
16
17    printf("\nThe sum of the first and second number is %d.", one);
18    printf("\nThe difference between the first and third number is %d.", two);
19    printf("\nThe product of the second and third number is %d.", three);
20 }
21

```

The output window on the right shows the following text:

```

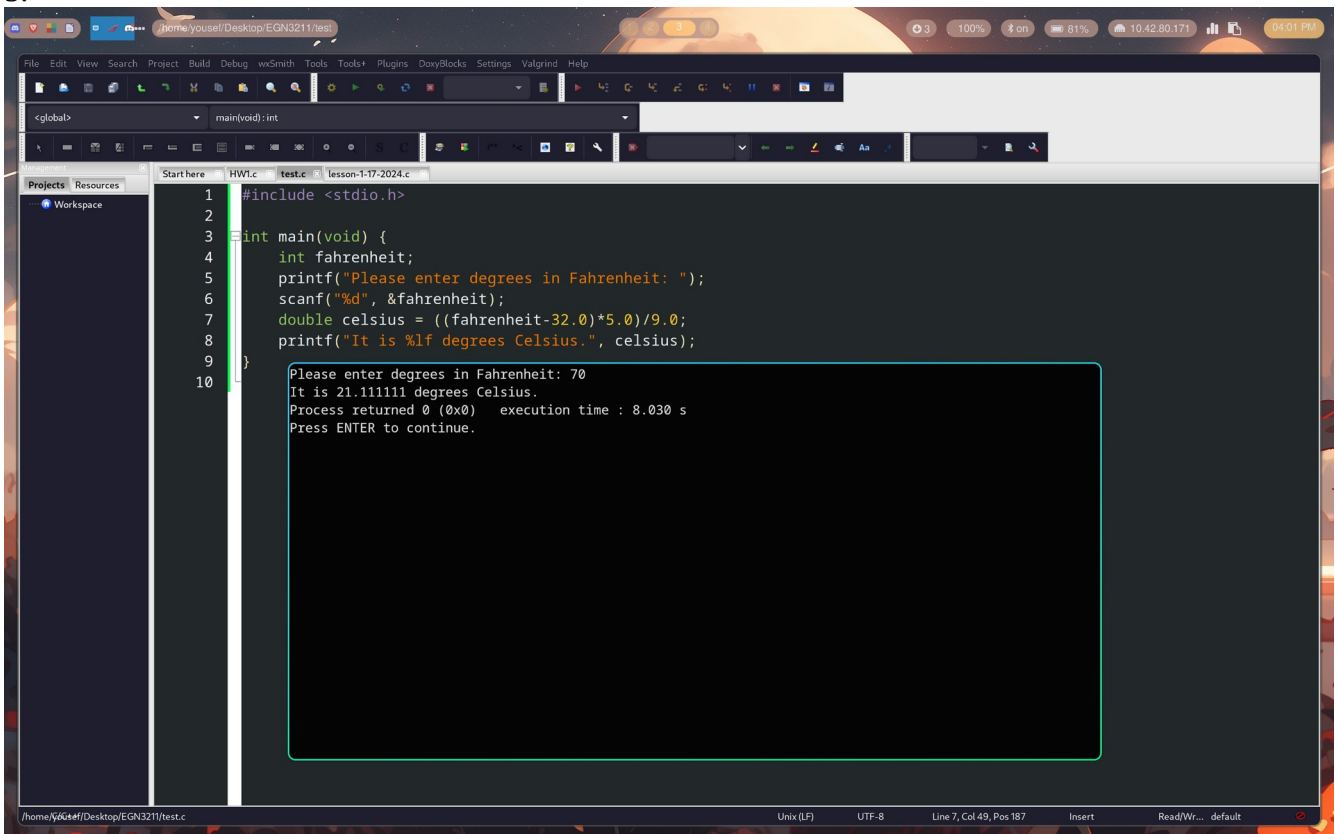
Please enter the first number: 4
Please enter the second number: 3
Please enter the third number: 2

The sum of the first and second number is 7.
The difference between the first and third number is 2.
The product of the second and third number is 6.
Process returned 0 (0x0)   execution time : 26.548 s
Press ENTER to continue.

```

The status bar at the bottom indicates the file is in UTF-8 encoding, line 21, column 1, position 1.

5.



```
1 #include <stdio.h>
2
3 int main(void) {
4     int fahrenheit;
5     printf("Please enter degrees in Fahrenheit: ");
6     scanf("%d", &fahrenheit);
7     double celsius = ((fahrenheit-32.0)*5.0)/9.0;
8     printf("It is %lf degrees Celsius.", celsius);
9 }
10
```

Please enter degrees in Fahrenheit: 70  
It is 21.111111 degrees Celsius.  
Process returned 0 (0x0) execution time : 8.030 s  
Press ENTER to continue.