1. If the first number of an arithmetic progression is *a0* and the common difference is *d*, then the *n*th number of the arithmetic progression is given by

Write a program that asks the user to enter *a0*, *d*, and *n*. It must then calculate and print *an*.

Sample output:

|  |
| --- |
| This program prints the nth element of an arithmetic progression  Enter the first element: 3  Enter the common difference: 2  Enter the value of n: 6  The nth element of the arithmetic progression is 13 |

1. Write a program that asks the user to enter the name of a month and prints the number of days in that month.

Sample output:

|  |
| --- |
| This program prints the number of days in a month  Enter the name of a month: August  No. of days in August is 31 |

1. Write a program that asks the user to enter their height (in m) and weight (in kg). It must calculate the user’s BMI using the following formula:

The program must then tell the user the range in which their BMI falls:

|  |  |
| --- | --- |
| **Range** | **BMI** |
| Underweight | BMI < 18.5 |
| Normal | 18.5 <= BMI < 25 |
| Overweight | 25 <= BMI < 30 |
| Obese | 30 <= BMI < 35 |
| Severely obese | 35 <= BMI |

Sample output:

|  |
| --- |
| This program calculates BMI  Enter your height (in m): 1.57  Enter your weight (in kg): 54  Your BMI is 21.9076  You are normal |

1. Write a program that asks the user to enter an integer n and prints its multiplication table.

Sample output:

|  |
| --- |
| This program prints multiplication tables  Enter an integer: 8  Multiplication table for 8  8 \* 1 = 8  8 \* 2 = 16  8 \* 3 = 24  8 \* 4 = 32  8 \* 5 = 40  8 \* 6 = 48  8 \* 7 = 56  8 \* 8 = 64  8 \* 9 = 72  8 \* 10 = 80 |

1. Write a program that does exactly what the following program does, but uses a for loop instead of a while loop, i.e. convert the while loop in the following program to a for loop.

|  |
| --- |
| #include <iostream>  using namespace std;  int main () {  cout << "This program demonstrates looping" << endl;  int i = 0;  int sum = 0;  while (i < 101) {  sum += i;  ++i;  }  cout << "Sum = " << sum << endl;  return 0;  } |